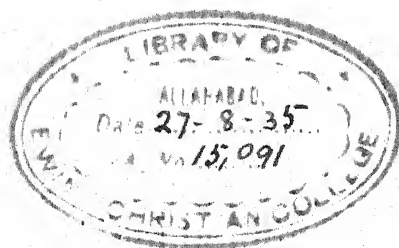


ALLAHABAD UNIVERSITY STUDIES

VOL. XI—(ARTS & SCIENCE)

EDITED BY

The Vice-Chancellor and the Heads of Departments



SENATE HOUSE
ALLAHABAD
1935

Price Rs. 7 as. 8.

Printed by K. Mittra, at The Indian Press, Ltd., Allahabad.

CONTENTS

Arts Section

	PAGE
SECTION I—ENGLISH	1—78
1. Poetry: A Problem—by Ahmed Ali ...	1—34
2. The Sentiment of Nature in the Literature of Travel, 1850—1900—by S. C. Deb ...	35—78
SECTION II—HISTORY	79—117
3. The Original Inhabitants of the United Provinces: A Study in Ethnology—by Amalananda Ghosh	81—117
SECTION III—SANSKRIT	119—153
4. The References to the Brahmanical Religion in the Pali Canon—by Dwaresh Chandra Sharma	121—153
SECTION IIIa—HINDI	155—259
5. Materials for the Study of the Puṣṭimārga —by G. P. Tandon ...	155—259
SECTION IV—ARABIC & PERSIAN	261—297
6. The Ma'ālī'l-Himam of Al-Junayd Al-Baghdādī —by Habibullah Khan Ghazanfar ...	263—297
SECTION V—PHILOSOPHY	299—342
7. Some Aspects of the Philosophy of Religion —by Jaswant Sahai Mathur ...	301—342

Science Section

SECTION I—ZOOLOGY	343—414
1. On the Cytoplasmic Inclusions in the Oogenesis of Appias Narendra—by Shyam Mohan Srivastava and D. R. Bhattacharya ...	345—414
SECTION II—CHEMISTRY	415—475
2. Behaviour of Silicic, Vanadic, Tungstic, Molybdic, Telluric and Antimonic Acids as Colloidal Electrolytes—by N. R. Dhar and S. Ghosh ...	417—430

3.	The Theory of the Clotting of Blood—Part III. The Indefinite Fluidity of Blood in body—Vessels, and the Relation Between Setting Time and Syneresis of Blood Clot—by Satya Prakash ...	431—442
4.	Glutathione as an Inductor in the Oxidation of Glucose—by C. C. Palit ...	443—455
5.	Use of Alkali Tartrates in Diabetes and Prolonged Fasting—by C. C. Palit and N. R. Dhar ...	457—461
6.	Chemical Examination of Some of the Indigenous Medicinal Plants of India—by Narendranath Ghatak ...	463—475
SECTION III—MATHEMATICS ...		477—486
7.	Solar Eclipses of India from 919 B.C. to 1500 B. C.—by M. S. Chatterji ...	479—486

ARTS
SECTION I
ENGLISH

Allahabad University Studies

VOL. XI

1934

NO. 11

POETRY : A PROBLEM

BY

AHMED ALI

Lecturer in English to the Allahabad University

INTRODUCTION

Many theories regarding poetry have been advanced. Some say it is an "idealisation," and others that it is a "criticism" of life, and so on. So much the combatants in the lists have fought that we are at a loss to understand as to what it really is. Poetry in the light of these interminable discussions has come to put on the dark, unpleasant and heavy-hanging robes of a problem. It has become a problem. And it is this discussion which is the main subject of this essay. I do not know how far I am justified in having entered the lists myself, and in having put forward my own thesis, heaped more dust on heaps of clay. But the die is cast, and I leave it for my critics to decide.

I. THE NATURE OF POETRY

Man is an emotional creature. Every human being has emotions. Every one is overwhelmed by his or her

emotions at one time or other of his life. And poetry is that passive science which deals with these emotions in a passive way. It is a passive science because it does not dissect or analyse emotions, or lay bare in a matter-of-fact language their cause and reason, which is the realm of psychology, but because it embodies them in its realm. In a passive way because it is not set to that particular purpose, but simply because emotions happen to be its particular field, and because men happen to have not only emotions, but a strong desire to express them.

With these few words about its nature—although I will come to it later too—I may go on to the nature of its making. Many a time most prosaic persons wax poetic with the thought of their childhood, or at the memory of some loved one dead or separated, or at some other overwhelming sorrow or deep-felt joy.¹ “For a man to become a poet (witness Petrarch and Dante),” says Byron, “he must be in love or miserable.” At such moments their hearts are touched to a rare tenderness, their minds to a rare depth of perception, and their imaginations to unwonted flights. They feel absolutely enraptured and transplanted to an entirely different world. They are, at such moments, capable of enjoying real imaginative experience. And there remains little difference between people in such a state and the poets so called. We can say that they are poets. Yet there is a difference. It is the lack of expression and the lack of the power of sustaining these moods, and of catching their deep-felt beauty. They are poets in themselves and for themselves. For the world they are not; for they do not either communicate their emotions, or are devoid of the faculty of communication. When they begin to do so they come under the category of poets. In this emotional state their faculties of percep-

¹ By ‘poetic’ I mean here emotional, of course.

tion and imagination are deepened and intensified. Here is a poem of Rossetti, "The Woodspurge," which is its own testimony :

The wind flapped loose, the wind was still,
Shaken out dead from tree and hill :
I had walked on at the wind's will,—
I sat now, for the wind was still.

Between my knees my forehead was,—
My lips, drawn in, said not alas !
My hair was over in the grass,
My naked ears heard the day pass.

My eyes, wide open, had the run
Of some ten weeds to fix upon ;
Among those few, out of the sun,
The woodspurge flowered, three cups in one.

From perfect grief there need not be
Wisdom or even memory :
One thing then learnt remains to me,—
The woodspurge has a cup of three.

The poet in an intense emotional state after wandering about sits down in an unmistakably sad position with his forehead between his knees, oblivious of everything, only his 'naked' ears hear the day pass. And all of a sudden he chances to see a woodspurge, and discovers that the woodspurge has three cups in one, which before he had never noticed, for he tells us that

One thing *then* learnt remains to me,—
The woodspurge has a cup of three.

All of a sudden, imaginatively, the poet had discovered the real truth about the woodspurge.

But this habit and this quality of imaginative experience and of poetry is inherent in men. It is never brought about by training or education. For, when man

was in the earliest stages of civilization, when he lived in the crudest fashion and did not possess the science of writing, there were poets. They felt; and they composed their crude, but nevertheless beautiful, songs; sang them, and handed them down to their children orally.² Even today, in our country, we find this beautiful phenomenon of poetry flourishing, not only among the most illiterate and backward people, the rustics, but among those uncivilized tribes who are still in an aboriginal state. They compose exquisite songs, full of sheer beauty. They may be devoid of grace, but their claim to poetry no one can deny them.

Poetry comes with feelings and emotions. It is an instinct, and innate in man. Apart from the artificial stimuli, *e.g.*, sorrow, which is by far the greatest stimulus, or joy, or some memorable event in one's life, which stir emotion and desire, another essential of poetry is Imagination. Imagination combined with an adequate power of expression makes a man a poet. For, under the influence of passing stimuli every one may become poetic and succeed in writing poems, as the imagination latent in every man is bound to be stirred at such moments. But for becoming a poet in the real sense of the word, these qualities must be permanent.

I hope I am not belabouring this point. But one great fact about poetry is that it is written by man, and man is not a simple being, composite as he is of emotions and impressions besides other ingredients. Just see how in this poem of A. E. perceptions change into impressions,

² The theory about the origin of the earliest English ballads that they were composed by people sitting round the camp fire, or at the time of some festival, collectively, when one man composed a few lines and the others came out with their due shares, seems quite pertinent to me.

and in the end the whole thing changes into an emotion of joy :

The children were shouting together
And racing along the sands,
A glimmer of dancing shadows,
A dove-like flutter of hands.

The stars were shouting in heaven,
The sun was chasing the moon :
The game was the same as the children's
They danced to the self-same tune.

The whole of the world was merry,
One joy from the vale to the height,
Where the blue woods of twilight encircled
The lovely lawns of the light.

The striking note of the poem is joy, which was inculcated upon the poet's mind by the playing children. This affected his perception as well as his emotion. And a few things of note come out of this. Let us ponder to examine them. First of all let us see the truth of certain statements the poet has made :

*The stars were shouting in heaven,
The sun was chasing the moon :*

As far removed from reality as possible, it will be said. And certainly the stars do not shout, nor does the sun chase the moon. Correct? No. But true it surely is. Not perceptual truth, but imaginative truth, which is the poetic truth. Why? Because suddenly the stars have become symbolical of the children, as also have the sun and the moon, shouting and chasing each other. With one imaginative stroke the poet has made the children of the earth and the stars of heaven as one. The children have become the stars. It is the same kind of truth that lies at the root of Dante's utterance 'I am Beatrice,' and of

Mansoor's exclamation 'I am God.' It is the same truth which is displayed in lines such as these, (and in fact in all metaphor) :

. . . . (for in my dream
I thought our world was setting, *and the sun*
Flared a spent taper;)

. . . . And now she spoke *as when*
The stars sang in their spheres.

Her voice was *like the stars*
Had when they sang together

All in the hot and copper sky,
The *bloody* sun at noon,
Right up above the mast did stand,
No bigger than the moon.

Well, do the stars ever sing? Not even by way of an illusion.³ And Mr. Livingston Lowes would have us believe that poetry is an illusion.⁴ But as a matter of fact all that we see is an illusion, the sun, the moon, the stars, the earth, whatever we see; in short, our very life is an illusion. It all depends on our having an 'illusionistic' outlook on life. But coming to the point under consideration. There is no illusion in the song of the stars. I for one am not prepared to believe that :

. . . . And now she spoke as when
The stars sang in their spheres.

And

Her voice was like the stars
Had when they sang together

³ It is a different matter altogether that this is one of the literary conventions which was very common during the middle ages which had borrowed it, I suppose, from Pythagoras' theory of the 'Harmony of the Universe'; and that in following it Rossetti keeps up the illusion and atmosphere of medievalism in a poem essentially and deliberately pre-Raphaelite and medieval.

⁴ *Convention and Revolt in Poetry*, by John Livingston Lowes.

It produces no sense of illusion about the singing of the stars in our minds. And the poet had none when he wrote that. Only we hear the sweetness of the Blessed Damozel's voice, a sweetness as of the stars in the silent spheres. The voice symbolises the beauty of the stars, and the stars symbolise the sweetness of the voice. We are not left in any doubt as to either the one or the other. But more of it later.

Coming back to the poem of George Russel from where we started let us examine the second point of note,—we have already looked into the truth of one,—the truth of perception and impression. The second concerns the last stanza of the poem :

The whole of the world was merry,
One joy from the vale to the height,
Where the blue woods of twilight encircled
The lovely lawns of the light.

If we classify the poem we shall find the first stanza to be dealing with perception, the second with impression, and this last with emotion. For, there is no way of understanding how the poet came to say that the whole world was 'merry.' Another poet writing at the same time may have called the whole world sad for aught I know. And here is Robert Bridges seeing the mountains whence the nightingales come beautiful in one stanza, and barren in the next :

Beautiful must be the mountains whence ye come,
And bright in the fruitful valleys the streams wherefrom
Ye learn your song:
Where are those starry woods? O might I wander there,
Among the flowers, which in that heavenly air
Bloom the year long!
Nay, barren are those mountains and spent the streams:
Our song is the voice of desire, that haunts our dreams,
A throe of the heart

Whose pining visions dim, forbidden hopes profound,
No dying cadence nor long sigh can sound,
For all our art.

The point is that it all depends on the mood of the poet. In the case of Russel's poem we can to a certain extent trace the cause of that mood of the poet : the beauty of the dancing and frolicking children leads him to perceive the eternal beauty of the stars and the sun and the moon, which so fills his heart that he sees beauty all around, and as his heart was filled with happiness he thinks the whole world to be merry. His view of the world was guided by his own emotion, which at that moment happened to be that of joy. That stanza does not embody a universal truth, but an emotional truth.

I have tried to illustrate how perception is intensified in an emotional state; and how perception and impression bring emotions into activity. And one fact comes out of all this discussion, that poetry is subjective, or that kind of poetry which I have been examining is subjective. Many examples come to my mind, but I must hurry on for

at my back I always hear
Time's winged chariot drawing near.

II. WHAT IS POETRY?

At this point of the discussion let me ponder to ask, what is poetry after all? This is a difficult question, almost impossible to be answered in a few sentences or even pages. It is doubtful whether it can be answered at all. Poetry is a thing which can be felt and felt alone. It is that problem which eludes all definition. Many have been given by eminent poets and critics; but none is adequate enough to give *the* idea of what poetry is. For instance, if I were to tell any one who does not know what poetry is Wordsworth's definition that "Poetry is the

breath and finer spirit of all knowledge;" or this one about all art, and poetry is an art too, that "it is the expression of the invisible by the visible," will he be able to form any idea, however inadequate, about poetry? They describe only its quality. No more. But I had taken two very general and almost vague examples. Let me take two more. Here is Poe's that poetry is "the rhythmic creation of beauty." In poetry there is rhythm, and the poet does create beauty by its means. But does it *define* poetry in any way? Or take this one of Leigh Hunt's that "it is the utterance of a passion for truth, beauty, and power, embodying and illustrating its conceptions by imagination and fancy, and modulating its language on the principle of variety in unity." And this too only gives what poetry gives or attempts to give: but define it does not. I am afraid it rather confuses one. If I were to venture forth a definition of my own I would say that poetry is a symbolical expression of life; a metaphorical use of words and language. But another person will give another definition entirely different from mine and those of the others.

Thus, we see we cannot define it. We can only know it and feel it. We know its component parts, *e.g.*, language and emotions or subject. We know the so many devices that go to make it, *e.g.*, rhythm and metre and images; and the artifices that go to beautify it, as alliteration, assonance, consonance and onomatopœia, etc. and yet we cannot fully know what it is after all. Mr. Lambourn rightly suggests that we cannot define poetry as we cannot life or love.⁵ Only its effect can be known and felt. We can feel it because all poetry primarily deals with emotions; and the contact which the feelings of the poet establish with ours, and the effect which they produce on

⁵ *Rudiments of Criticism*, by E. A. G. Lambourn.
F. 2

us, stir our imagination, and make us know and feel that it is poetry. Otherwise what is there in such lines?

Alone, alone, all all alone,
Alone on a wide wide sea.

Only a mere repetition of three words. But what a sense of loneliness, what a sense of hopelessness do they produce on us! There is no doubt that the effect is enhanced by the technique. All slow-moving words with dark vowels, mostly of one syllable with the exception of 'alone,' whose 'a' however is not so conspicuous, its sound being so slight, almost a half-sound, casting but a very slight shadow even which is merged into the long shadow of the following syllable 'lone.' The slow-moving, single-syllabled words put together yet independent of each other, with the exception of 'on a' which form the unaccented syllables of the anapæst with 'wide,'—of course leaving the 'a' of all the 'alones'—, for 'all all' of the first line are both accented, thus forming a spondee, as do 'wide' and 'sea' in the second line, although 'wide' and 'sea' both could form two separate feet having their unaccented syllables missing, which could also apply in the case of 'all all.' This feeling of loneliness is produced by placing the single-syllabled words independent of each other (if all the 'a's' and 'on' are neglected). Then the liquid sound of the 'l's' in 'alone' and 'all' produce the effect of floating, and the one anapæst adds to the effect of wideness of the sea, combined with the 'o' sound in 'alones' and the upcurving sound of 'i' in 'wide.' The poignant sound of 'a' in 'all,' which casts a deeper shadow than 'o,' sounding like a solitary hopeless cry for help, gives the effect of helplessness; and the diving sound of 'sea' leaves us, as if nowhere. The 'n' with its resonant metallic sound adds to the vastness of the sea, and the 'd' with its dark closed sound adds to the hopelessness and

futility. The repetitions are to be noted also. ' Alone ' is repeated four times impressing upon us the loneliness : ' all ' is repeated twice, and is responsible for the effect of hopelessness : and ' wide,' repeated twice, hammers upon our minds the unending extensiveness of the sea . . . And with all this the lines are as simple as possible, nay, great in their simplicity, a great example of grand style in poetry.

But without a truly great sincerity and depth of emotion the poet could never have succeeded in composing such lines. Otherwise they would never have produced any deep effect on us, they would never have stirred emotions in us, but only sentimentality, the sentimentality which Keats evokes in

My heart aches, and a drowsy numbness pains
My sense, as though of hemlock I had drunk,
Or emptied some dull opiate to the drains
One minute past, and Lethe-wards had sunk:

which has the same lack of real emotion as Yeats's poem beginning :

I will arise and go now, and go to Innisfree

which evokes only sentimentality in us, the ghost of an emotion, and no emotion. The fact is that the poet has failed to communicate his emotion to us. The poet had a vague something in his heart, but did not fully know what it was. It is not the same total lack of emotion that we find at times in Swinburne :

Pale beds of blowing rushes
Where no leaf blooms or blushes,
Save this whereout she crushes
For dead men deadly wine.

or as in :

For Winter's rains and *ruins* are over,
And the season of snows and *sins*.

Why for dead men deadly wine? And why winter's rains and *ruins*: and why is winter the season of *sins*? Is it not merely for the sake of alliteration that dead and deadly have been used in the first quotation, as ruins has been for the same reason, as well as sins in the second. In fact, ruins and sins have been used for their values of alliteration, sound and assonance: The 'n' and 'r' sounds are prominent in the first line, and 'n' and 's' sounds in the second, 'n' being the common sound to both; and ruins is joined to sins because of their assonance. The technique undoubtedly is good. But technique alone does not make poetry, unless *feelings* are there, or unless they stir our imagination and emotions. But it can be said that all good poetry should leave us different beings from what we were before we read it, and Swinburne does affect us by his music. There is no doubt that his music does affect us, and leaves us different beings. But in what a sense! Swinburne's music has been described as "narcotic," and he really has a benumbing influence on us. Poetry should create; but after reading him aloud—and all poetry should be read aloud—for some time all feelings are dulled, all thought benumbed. It is because at times there are no feelings in him; and he goes on weaving line after musical line without any thought or sense of meaning. Hence he has a deteriorating influence on us instead of a creative one.

Real poetry is creation—of delight, emotion and metaphor. Delight comes to us through technique; emotions give it its appeal; and metaphor gives it its greatness. The pleasure comes to us through the poet's delight in form and words, when he succeeds in creating beauty by their means, *e.g.*, in "Bells" of Poe. I quote only the first and shortest part; but the whole must be read:

Hear the sledges with the bells,
Silver bells!

What a world of merriment their melody foretells!
 How they tinkle, tinkle, tinkle,
 In the icy air of night!
 While the stars that oversprinkle
 All the heavens, seem to twinkle
 With a crystalline delight;
 Keeping time, time, time,
 In a sort of Runic rime,
 To the tintinnabulation that so musically wells
 From the bells, bells, bells, bells,
 Bells, bells, bells—
 From the jingling and the tinkling of the bells.

Its appeal comes to us when the poet succeeds in communicating his emotions to us, *e.g.*, in Rose Aylmer of Walter Savage Landor :

Ah, what avails the sceptred race!
 Ah, what the form divine!
 What every virtue, every grace!
 Rose Aylmer, all were thine.
 Rose Aylmer whom these wakeful eyes
 May weep, but never see,
 A night of memories and sighs
 I consecrate to thee.

Creative metaphor, which appeals directly to our imagination is the very true test of a great poet. If we turn to Shakespeare we will find them in plenty; but to give only one :

The morn in russet mantle clad

When Blake says :

*Tiger, tiger, burning bright
 In the forests of the night*

he is giving us a creative metaphor; or this from T. S. Eliot :

The yellow fog that rubs its back upon the window-panes,
 The yellow smoke that rubs its muzzle on the window-panes

Licked its tongue into the corners of the evening,
Lingered upon the pools that stand in drains,
Let fall upon its back the soot that falls from chimneys,
Slipped by the terrace, made a sudden leap,
And seeing that it was a soft October night,
Curled once about the house, and fell asleep.

Poetry exists because we see happiness and joy all around us and we want to give expression to our delight in the beauty of things : or we do not find it a fit place for existence. We begin to form worlds of our own, the nearest to our hearts' desires. We give expression to our desires and ideals. We want others to share our ideals and dreams. We want others to have a view of the world we have discovered for ourselves.

But poetry appeals to us only when it is alive, when it has all " blood, bone, marrow, passion, feeling," as Byron said,—when it has life, when it is made of life, and not merely of the stuff dreams are made of. The moment it sticks to only one of these things it loses its charm. It is not that the body (in which life is stored)—I mean form—is not important. Without the body these things would not exist. But the physical alone should not be emphasised. Dryden and Pope had emphasised mostly the physical, and their appeal, therefore, is purely physical. They engaged themselves in expressing " what oft was thought, but ne'er so well expressed." And Pope especially had gone to poetry, as a necessity, to correct the morals and manners of the day, and that is why his appeal is not so great. There is no doubt that they are finding favour today with the English public, thanks to the penetrating and sympathetic attention of Mr. Eliot and Miss Sitwell, for undoubtedly they have their own beauty. Only their poetry should be read as a whole, for it deals with the surface of life, which cannot be appreciated easily unless, I suppose, to use Mr. Eliot's word, one is " saturated "

in it. But the fact is, I believe, that the present-day English society has much in common with the 18th century. A similar artificiality in life and manners exists, the similar burning problems of morality demanding a re-adjustment between the relations of the sexes; and if life and letters and politics were discussed in Salons then, they are discussed at clubs today. The modern poets again, are taking more of a common-sense view of things, mingled with pungent satire. There is no doubt that a sense of futility and pessimism is still there, but it is because of other causes and things, and because it is the period of decay of the culture and the social order of disrupting capitalism. But to keep to our present discussion: Witness Mr. Eliot's attitude towards love. Behind that exquisite poem, *The Love song of Alfred Prufrock*, lie camouflaged Mr. Eliot's own amorous experiences; but how successfully he has concealed them in 'situations,' on which all the emphasis falls; and all the poignancy of a young love-experience is not merely toned down, but concealed behind subtle and satirical humour and cynicism, that cynicism with which a person laughs at himself:

I grow old . . . I grow old . . .

I shall wear the bottoms of my trousers rolled.

Shall I part my hair behind? Do I dare to eat a peach

I shall wear white flannel trousers, and walk upon the
beach.

He pictures himself in the most ridiculous situations to laugh his sentimentality away. This is only one channel through which common-sense attitude asserts itself. Mr. Eliot and the other poets of today would give examples of these things in number. But I must go on to other important things, but not before quoting a most beautiful satirical thrust on a custom which all of us observe in

everyday life, even here. This is from a poem called "Hell" by Mr. Robert Graves :

When living words and men meet, two and two,
In this one-twentieth part still actual scene,
They exchange pinches at their "How d'ye do?"
For a punctilious "Do you mean what you mean?"

But with all this digression into the modern world, the fact remains that Dryden and Pope are too physical, and their school too meticulous about form alone. But this would not do as, to quote Byron in full,

I would to heaven that I were so much clay,
As I am blood, bone, marrow, passion, feeling.

There's the rub! We are more blood, bone, marrow, passion, feeling, than clay. And that is why emotion counts for more.

III. THE QUALITY OF POETRY

Poetry is a fine art, and let us see what is its nature, whether it is an imitation of life, merely "photographic," or something else. Plato is responsible for the idea that poetry is an imitation. But if it is a mere imitation of life, it is hardly an art. For, being this it cannot have the high ideals and qualities which all ART has. In imitating life it will be like life, as cheap and commonplace. There is no doubt that there will be the little pleasures and sorrows, the ugly things, the lovely things, as in life; but these will not show us new paths, new ideas, new desires. For, being chained down to imitation, the artist will not be able to give his own ideas about things, and his products will not be living things. Life, as it is, we see every day; its aspects are revealed to us through one thing or the other : and if art purports to be a *copy* of life it will wear away completely its appeal to us. For, being an imitation it may not have

the appealing quality of emotions. If art does not go above and behind life and find out its hidden universal truths, it will be condemned by the next generation, if not by the same in which it is produced, as some aspects of life, the superficial ones, keep on changing. The outlook of one generation is not the same as that of the other. And if art does not portray things that are deeper and more permanent, it will be forgotten in no time. Surely all great artists would have been forgotten long ago, and Shakespeare among them, if they had been merely imitating life. Because imitation means imitating life as it is, which surely does not mean the things of permanent value but just whims and fashions prevalent at one time.

It is wrong to say that poetry is an imitation of life. For, the poet, or any man as to that, *lives* life. He does not *imitate* it. The man, his thoughts and his feelings, form life. In fact the feelings and ideas *are* life. The difficulty comes in when we put it down on paper or on the canvas. The moment we do so it becomes static. Therefore it does not remain life. But how can it be an imitation? Poetry consists of ideas, reflections and feelings. And our ideas and emotions are not imitations of anything. They are what they are : living things. There is no doubt that the difficultness of the medium—language—comes in. But language is not imitation. When we say “ tree ” we do not imitate anything. The word tree is just a symbol for the thing which we know by that name. In the same way all words are symbolical of different things. A few words are, no doubt, imitations, *e.g.*, croak, caw, etc., which imitate the sounds produced by the frog and the crow respectively. To overcome this difficultness of the medium the poet takes recourse to other devices. Since he cannot put emotions and ideas directly, he finds equivalents to suggest them and symbolise them. I mean symbols, metaphors and similes, by which means he succeeds in

communicating to us his love, hatred, joy etc. in all their beauty or intensity. Let us take some examples :

My love is like a *red, red* rose
That's newly sprung in June;
My love is like a *melody*
That's sweetly played in tune.

Is love like a red rose, or like a melody? But how could the poet have communicated her beauty or her sweetness to us so well if he had not taken recourse to such things. Or take these lines of Blake :

Tiger, tiger, *burning bright*
In the forests of the night.

The tiger does not burn. But how otherwise the poet could have communicated to us the multifarious beautiful qualities of the tiger? its colour, its grace, its symmetry, and its destroying qualities. Or, take these lines :

. . . . O she had not these ways,
When all the wild summer was in her gaze.
Or where the stars *walk* on the mountain tops
The desire of the moth for the star

The charm of these lines lies, not in imitation, but in something which is far from it, which symbolises and suggests by falsifying. Mr. John Livingston Lowes points out (in his brilliant book, *Convention and Revolt in Poetry*) that, in the 'Ancient Mariner' as printed in the 'Lyrical Ballads', occurred the familiar lines

The fair breeze blew, the white foam flew,
The furrow *followed* free.

Later in the 'Sybilline Leaves,' the second line was printed thus :

The furrow *streamed off* free.

And Coleridge appended to the revised line a note: 'In the former editions the line was, 'The furrow followed free.' But I had not been long on board a ship, before I perceived that this was not the image as seen by a spectator from the shore, or from another vessel. From the ship itself the *wake* appears like a brook following off from the stern.' "

Prof. Lowes goes on to point: "Perfectly true, and truth of appearance at that. But supererogatory truth of fact lurks behind the change, none the less. For the Mariner, as Coleridge's intellect, hunting above, perceived, was on the ship, not off it, and so should see the furrow streaming away, not following. But to obtrude that fact is to snap the spell—to take the Ancient Mariner from the mystery of his boat . . . And eleven years later, with his unruly intellect in its place again, Coleridge restored the original reading."

This certainly advances a great point in our favour. A poet's own testimony to the fact that a line which was true to fact—imitative—was false to the poem. Why? Because that corrected line was not truly symbolical of the Mariner's life in that situation. It was too imitative.⁶

There is one kind of poetry, however, which can, to a certain extent, be imitative, taking the word at its face value. That is narrative or descriptive poetry, because here the poet describes, if he does so with absolute fidelity to fact, the things seen and events witnessed. But the moment his own experiences and impressions enter the imitation is gone.

⁶ 'Symbolical should not be confused with 'allegorical' which is something quite different. Allegory entails personifications; representing things through absolutely different and changed shapes, which are made to stand for things the poet has in mind. Symbolism, on the other hand, is just that simple association of things which every body forms in his mind unconsciously and naturally.

There is no other kind of poetry which can be imitative. Lyrical poetry is not. For, here the poet is in an active state,

hidden
In the light of thought,
Singing hymns unbidden,

and he says things, creates, and does not imitate. It becomes symbolical because in trying to convey his thoughts and ideas the poet has to speak in terms of something else.

Even Drama, which depends on the lives of men and women for its subject, is not imitative of life, because it deals with the emotions of people, and not merely with their actions. Prof. Vaughn has a very effective passage. Speaking of the advance which romantic drama has made over the classical, which is "a progress from the artificial to the natural, from the conventional to the real," he shows that in this there is an "obvious implication" which is misleading. "That implication, it need hardly be said," he says, "is that the true function of the drama is 'to copy nature'" (imitate) "to 'hold up the mirror to nature,' to reproduce human life exactly as it is. *This, however, is hardly the function of art in any shape.* (Italics mine.) It is certainly not the function of drama, as understood by its greatest masters." And again, speaking of the romantic artist, he says, "Even he is unable to paint life as a whole. Like all other artists, he is forced, by the purely material conditions of his task if by nothing else, to select. And the moment selection begins, the attempt to reproduce the object before him as a whole, to give an absolutely faithful copy of it, necessarily ceases." The artist, certainly, cannot show all that is and all that happens. That he has to suggest; and symbolise life in his work. In drama men find the images of their lives, their own thoughts, emotions and experiences caught and

suggested to them ; because the quintessence of life is there. In fact, the essence is the thing that counts : the rest is the decoration of the essence, which, like the ' soul,' resides within an outer form. It is the function of the artist to find out the essence, to make use only of the soul, and reject all superfluous material not needed for his art. And in order to keep out all superfluous material he has to suggest. The product is not imitative of life, but symbolical of it.

And that is why poetic drama appeals more, and tragedy depends for its greater effect on poetry. For, coming out of the imagination, it takes possession of the imagination, and shows us the innermost truth of things. Imagination helps us not only to divine things, but also to get to their essence and to present to us the soul, not merely an individual thing, but the very truth of things, that quality which links us to the unconscious out of which we are born.

But Prof. Vaughn leaps into a pitfall when he says that the function of art " is not to reproduce nature, but to idealise it." Certainly art does not merely ' reproduce ' nature, but it does not only ' idealise ' it either. Idealisation would mean that it only beautifies nature ; that the artist gives to it a shape that is always beautiful and charming ; that he gives only the good, minus all the evil. And that is what he obviously means by it as he says a few pages later (p. 16) that " its " (he is speaking of the highest poetry) " noblest task is to idealise, *not the lower, but the higher side of our nature.*" (Italics are mine.) But living life can we ignore the evil that is in it ? The idealised nature would become something like the Victorian dictum : everything must end in happiness ; miserable endings must be avoided. But art does not take

¹ *Types of Tragic Drama*, by C. E. Vaughn, p. 9.

only the good : it also takes the evil. Art finds inspiration in everything. Witness Goya's pictures of prostitutes who, in no way, are ornamental to life. That art which ignores reality has no backbone.

The assertion that art 'idealises' only, is not in keeping with the practice of the artists. The dramatic artists have not omitted evil. Witness the tragedies of even the Greeks. Orestes kills his own mother; Electra kills her own children in cold blood, and serves them to her husband, the father of her children. Take Seneca's tragedies. If they are not full of the evil of the world they have been written in colourless ink. Or, coming to Shakespeare, is Iago not full of evil, does not Macbeth give proof of it? and Regan and Goneril? Yet we like them all, admire them, and give them prominent places in our memories. And they are hardly 'idealised.' In an ideal or idealised world evil finds no place. And in art which idealises nature it should not find any place. Yet Milton's Satan is a great, I believe the greatest, masterpiece of art. If we were to idealise, we would forget the very realities of life, its miseries, the pains and sorrows. But it is not so. Art does not neglect any aspect of life. The only change that life undergoes in that great fusing-pot of art is that it is turned into a picture, as it were, appreciated and understood by people in different ways, pleasing the readers or spectators according to the identification it has with their feelings and experiences. Art delights us because there is the essence of life ready to put on whatever shape we give it. It imparts to us pleasure because we find ourselves reflected in it. We love ourselves in others, and we hate ourselves in others; and the appeal of art depends on how much we find of ourselves in it. Good and evil, love and hatred, all yield to us a joy in art. Because by symbolising, the artist, to use Prof. Vaughn's words, "by subtle touches makes us feel the pulse within."

Mathew Arnold says that poetry is a "criticism" of life. He was probably necessitated to say it because his age needed it. In Arnold's time there was a great conflict between the life and the imagination of the people. So much so that the problems of life had shadowed the imaginative activities of men. Witness the literature of the Victorian age—the poetry of Tennyson and Arnold; the novels of Dickens or the essays of Ruskin. All show a preoccupation with the problems of the day. The imagination works no doubt, but it is governed by the vital problems of the age, political, social, moral and religious. They are there, and in the foreground. Even a great critic, as Arnold was, could not but be carried away by the necessity of showing and preaching that art was a "criticism" of life. He forgot that art reflects life, and does not merely criticise it. If we examine we shall find very few poems to be really critical of life, not even the dramatic ones. One or two sonnets of Milton or Wordsworth may be found to be critical of life, and of course, some of Arnold's, but no more.

I may be accused of mutilating Arnold's dictum, because I have not mentioned the other half of it, i.e., "governed by the laws of poetic truth and poetic beauty." But I have taken for granted that it is that, that the criticism is governed by these truths. But the word "criticism" is the stumbling-block, for, it implies not only giving both the merits and faults of the subject criticised, but also the recording and passing of judgements. And judgement naturally implies justness, truth, and correctness. Now, a criticism can perfectly be just, true and correct, and be to a certain extent within the limits of poetic beauty. But when poetic truth comes in it cannot be all three in any strict sense, for poetic truth implies absolute fidelity to emotions and imaginative apprehension of facts. It needs just turning back to any of the quotations I have

given in course of my essay. Let me take Burns again :

My love is like a red, red rose,
That's newly sprung in June;
My love is like a melody
That's sweetly played in tune.

How, may I ask, is it critical in any just sense of the word ?

Art is something noble; something above life. It hovers above our heads, towers above, taking count of our souls, searching them and giving expression to their ideals and dreams. The one appropriate medium for the expression of our hopes and desires and feelings is supplied by art. And our desires and emotions cannot be a criticism of life. They take root in life, and reflect it. And in passing through the medium of imagination and the senses they become symbolical of life.

Emotion is essential for all true art. But in an emotional state a person cannot be truly critical. He is overwhelmed by his feelings and has entered into that glowing condition which is conducive only to creation. In such a mental condition one can never be in that objective state which is essential for any sincere criticism. The judgements passed in such a state will be emotional; too full of the author's likes and dislikes. This is too highly excited and imaginative a state to be appropriate for any right critical judgement. Mathew Arnold did not perhaps take count of this, and hence his dictum. And even he himself did not succeed in this. Such an attitude gives rise to pessimism, of which Arnold's poetry gives evidence; and he does not see any good in this world. Even such a dramatic poet as T. S. Eliot, who can be said to be critical of life, with all his detached outlook, with all his impersonal quality, cannot but be pessimistic. What is this world to him ?

This is dead land
This is cactus land.

And what does he find here?

What are the roots that clutch, what branches grow
Out of this stony rubbish?

In such a state the poets, or any one, cannot be justly critical of life. They are bound to give the extreme point of view. They are bound to see only one side of the picture, and even that the darker one.

But if we have to accept Mathew Arnold's dictum, we shall have to divide art into two sections—if we at all can do it. One, which will take count only of the true, the sincere, the spontaneous art : and the other which has been executed for the set purpose of criticising life. One would give us the aspirations of the souls of men, and their emotions and desires. The other would naturally follow the line of didacticism. It will try to reform. But art does not reform deliberately. Unconsciously it may, and does, bring about any amount of change. There is a story about Gerard's painting, *Love and Psyche*, that when the Parisian ladies saw it in the Salon in 1789, they were so much impressed by it that they began to paint their faces white in imitation of Psyche's complexion. That was the unconscious effect of a piece of art. But the didactic artist tries to assert himself, and "like an ineffectual angel beats his wings in the void." We do not read the poetry of Arnold with zest, while Shelley has still his appeal. Tennyson has no voice today for us; Keats still grips our imagination. The fact is that the art which tries to be critical is naturally cool and indifferent. It is conceived with that purpose, and loses its own purpose; whereas the real

art, the spontaneous art, is alive and forceful because it is emotional. It goes deep into the lives of men: the other only passes us by. One derives its material from life, and has its effect. The other takes life into account; and separating itself from it tries to judge it. It falls flat before us, for it has no direct appeal, because such poetry can be written, (to be emotional even), in moments of tranquil recollection, and is more egoistical than imaginative, and as Marcel Proust says, "there is always less egoism in pure imagination, than in recollection."

"Mathew Arnold's doctrine, that poetry is a criticism of life," says Mr. Lascelles Abercrombie in his "Theory of Poetry," pp. 46—49, "apparently puts the didactic fallacy in a more tactful form, but really sharpens its radical misconception of the poetic activity." And the poetic activity is that of creation and not of criticism. But to go on with Mr. Abercrombie, "It is true, nevertheless, that on reflection we may feel some implied criticism of life, when we contrast with the obscure and blundering hurly-burly of every day the clear significant order of things in poetry. Even so, unless a poem were composed in order to draw our special attention to this contrast (which would be very unlikely), we could not call it inspired by the criticism of life. Of course, if you abstract single lines, and wrest them from their purpose in the poem where they occur—that is, if you misrepresent their meaning—you can argue very specially for the criticism of life in poetry."

There is one branch of literature, however, which can be critical of life besides, of course, all propagandist literature, and that is the Novel. But the material of the novel and poetry and the other fine arts differs greatly. The novel deals with life, whereas the material of the fine arts is the quintessence of life. The method of the novel is realistic, that of the arts suggestive. And in the words

of Mr. R. A. Scott-James, "The art positively loses where-
in the novel gains!"⁸

One great function of poetry is to give aesthetic pleasure; to lift us, to make different beings of us. The poet rapt in his mood gives vent to his feelings. He translates his mood. But he does something else besides. As he does not say what his mood was like, he cannot but symbolise it. And this is done in two ways: through form and through words. Form symbolises the mood; words its subject. Form gives an idea about the quality of the mood; whether it was gay or sad, subtle or simple.⁸ The choice of metre and the structure of the verse are very important in the communication of an emotion.⁹ Milton's *L' Allegro* and *Il Penseroso* are two great and well-known examples of gay and sad moods respectively; Dowson's *Cynara* poem is another beautiful example of the sadness born of an hopeless and idealistic love, almost as futile as adolescent dreams which gave rise to it. Innumerable examples can be cited, but I shall content myself with just two here, as space would not permit me more. This is from Robert Bridges:

My delight and thy delight
Walking, like two angels white,
In the gardens of the night:

My desire and thy desire
Twining to a tongue of fire,
Leaping live, and laughing higher;

Thro' the everlasting strife
In the mystery of life.

Love, from whom the world begun,
Hath the secret of the sun.

⁸ *The Making of Literature*, by R. A. Scott-James.

⁹ See my unpublished paper, *Verse and the Allied Questions*.

Love can tell, and love alone,
Whence the million stars were strewn,
Why each atom knows its own,
How, in spite of woe and death,
Gay is life, and sweet is breath :
This he taught us, this we knew,
Happy in his science true,
Hand in hand as we stood
'Neath the shadows of the wood,
Heart to heart as we lay
In the dawning of the day.

The second is from James Elory Flecker, a poem sadly neglected by his anthologists, yet beautiful in thought, though one of his very early ones, I suppose, from the metrical point. It is called the "Piper," but I shall leave it for you to guess what the Piper symbolises :

A lad went piping through the earth,
Gladly, madly, merrily,
With a tune for death, and a tune for birth,
And a tune for lovers' revelry.

He kissed the girls that sat alone
With none to whisper, none to woo;
Fired at his touch their faces shone,
And Beauty drenched them as the dew.
Old men who heard him danced again,
And shuffled round with catching breath,
And those that lay on beds of pain
Went dancing through the gates of death.

If only he could make us thrill
Once more with mirth and melody!
I listened but the street was still,
And no one played for you and me.

In both these poems we feel the happiness of life, of a realisation of a mood or experience. Bridges is elated with the realisation of love, and the beauty born of love; and

his rhythm is accordingly gay and elated, almost ethereal. Flecker is filled with the happiness that is Hope, and sings of it in a happy strain, ending on a sad strain because Hope does not play for the poet. The importance of form can never be emphasised too much, but words give us not only the imaginative background of the poet's surrounding and the environment, but something of his "soul" also. Poetry is not thus merely interpreting life as it is, for there are other processes at work, as I have already pointed out. As poetry cannot give us life, it can only give a symbolical representation of it. For, when an artist makes a picture of anything, the picture is not the thing itself. It is his idea of that thing—as Mr. Scott-James points out¹⁰—and, of course, the idea is not the thing either. It is that thing caught in the idea, that is, the thing symbolised. Similarly a poet does not give life, he gives his idea of life, which is symbolical of life. To take an example, (although an example is after all an example), from D. H. Lawrence :

Mournfully to and fro, to and fro the trees are waving

What did you say, my dear?

The rain-bruised leaves are suddenly shaken, as a child
Asleep shakes in the clutch of a sob—

Yes, my love, I hear.

One lonely hill, one only, the storm-tossed afternoon is
braving,

Why not let it ring?

The roses lean down when they hear it, the tender mild
Flowers of the bleeding heart fall to the throb.

'Tis a little thing.

A wet bird walks on the lawn, call to the boy to come
and look,

Yes, it is over now.

Call to him out of the silence, call him to see

¹⁰ *The Making of Literature*, by R. A. Scott-James.

The starling shaking its head as it walks on the grass—
At who knows how?
He cannot see it, I can never show it him, how it shook—
Don't disturb it, darling.
—Its head as it walked, I can never call him to me,
Never, he is not, whatever shall come to pass,
No, look at the wet starling.

Here unconsciously the starling becomes symbolical of the dead boy. In the poet's mind the thoughts of the boy become one with the thoughts of the starling; and the boy and the starling become one and the same thing for the time; and the boy is symbolised in the starling. The same thing happens in poetry constantly. Our ideas and emotions are carried so far into life that they become life, and symbolise it for ever and always.

The poem is also illustrative of my other points. Its form symbolises the subtlety and the sadness of the emotions and experience. Note the subtle metre and the riming scheme, and the drawn-out and complex music of the lines. Note also the imaginative background of the poem; and the desire to show the dead boy the starling on the lawn; and the symbolical merging of the boy into the starling, and of the starling into the boy.

Poetry, thus, is not a criticism of life, but a symbolical representation of it, as has been my endeavour to show. All art, in fact, is symbolical of life. We cannot represent life directly as we cannot Beauty. And poetry is the most difficult art in this respect. In sculpture and in painting we can show the tenderness and beauty of a face or a landscape. We can to a certain extent represent beauty in stone or on canvas. But even there we cannot represent "Life" as it is. We have got to suggest the movement or the rhythm of a subject and hence symbolise it. Music becomes more difficult. Here we have to feel the emotion and beauty through sound. Our senses get the effect of the

notes and the harmonies, and the emotion communicated has the effect on us through the subtlety of sound. Just listen to Bach's Brandenburg Concerto. Gradually through gripping but subtle notes is communicated to us the realisation of love that dawns upon the artist and grows with all its happiness and sorrows and emotions, welling up to almost breaking point : How love's happiness fights with the sorrow of love; and in the end all is lost in the sheer ecstasy of love, a sweetness beyond telling. Or listen to Beethoven's Sonatas rippling with loveliness, tender as the moonbeams; or his Symphonies, the Sixth, gay almost as L' Allegro; and the ninth, that great masterpiece, where almost, as it were, we listen to the whole story of Creation in beautiful wellings up of masterful harmony, where the sorrows of humanity, birth and death, creation and destruction, rise and mingle and die away. We cannot say that there is not life there; but life is not put before us as it is. It is symbolised for us in heavenly harmonies of sound and rhythm. Music should make the symbolical nature of Art quite clear, if other arts leave a doubt about it.

With poetry, there is no doubt, it becomes more difficult. Poetry is written in words which in themselves are only symbolical of things. Then, poetry has to depend a great deal on metaphors and images. These are not representations of things either. They merely try to give an idea of things and symbolise them. The poet cannot show us Beauty. He tries to represent it through images :

Beauty is like a waving tree;
Beauty is a flower.

He can only give us a thing which we can call beautiful, and never Beauty's own self. Hence the lines he gives us are not a true representation of it. He appeals to the readers' feelings and imagination to produce an effect on

them. This is achieved by means of images and symbols, for, they alone come handy to him. In the following lines the poet tries to show how beautiful Helen is, and what it means to him :

Helen thy beauty is to me
Like those Nicean barks of yore
That gently o'er a perfumed sea
The weary, way-worn wanderer bore
To his own native shore.

Here we do not find the beauty of Helen described, how lovely her nose was, how beautiful her eyes were, how rosy her cheeks and how splendid her form—which would have been imitative. It is not here. But we get an idea of the perfection of Helen's beauty by the exquisite watery images and the symbols of bark and sea, the poet has called to his help. The poet has not described any particular Helen, but the lines are symbolical of the charms of any woman. They have gone deeper and higher in having become universal. Helen has become a symbol of womanly beauty, as Shelley's Prometheus is the symbol, not of a figure that may have lived long ago in the mind of man, but of the revolt of man against the supererogative authority and tyranny of the Gods; or as Keats's La Belle Dame Sans Merci is symbolical not only of the poet's sorrows, but of the sorrows of the whole world, sorrows born of love.¹¹

¹¹ Innumerable examples of the use of symbols can be cited from English poetry. Poe himself stands conspicuous for his use of symbols. Mark the use of 'raven' as a symbol in that great poem called The Raven. Note also Poe's masterful use of symbols in 'Ulalume'; Leaves; the lake of Amber; the wood-land of Weir, etc. (The second stanza gives the finest description of youth, which is attained by the symbolical use of "Scoriac rivers" and "Leaves", the use of 'sky', as symbolical of peace; etc. etc. The examination of Poe's symbols requires far more space than can be utilised in just a note, and I would leave it here for the time... Ralph Hodgson's 'Bull' is another example of the use of 'bull'

I may be accused of finding and mentioning poems with direct symbols in them; but all poetry, in fact, is nothing but symbolical, because the artist is not conscious of his art. As Jung says, "Whether the poet knows that his work is generated in him and grows and ripens there, or whether he imagines that he creates out of his will and from nothingness it changes in no way the common fact that the work grows beyond him," the work does grow beyond him! It is clear that the artist is not writing consciously. He is probably not conscious of his art at all: because it does not give his aims, but symbolises the higher and deeper, his subterraneous desires which he himself is not aware of. In the same way his methods and devices are unconscious.

I have said that the subject under treatment cannot but be treated symbolically. Try to describe taste. You cannot even successfully represent it. We can only suggest it through symbols, images, similes and metaphors. Similarly we have emotions and yet we cannot directly communicate them. We know what life is, but we cannot truly represent it. We have only to suggest emotions as well as life. And where suggestion begins symbolisation enters. With the difficult medium of poetry we cannot but symbolise Life. That is why poetry has a lasting appeal, like all true Art, for we see in it our own thoughts and emotions and desires and dreams. And although the outlook of men changes, the River of Life flows on "still steadfast, still unchangeable;" and poetry remains a magic mirror in which men see themselves reflected and portrayed for ever and always. What if desires and dreams and powers fly and die away, the thing remains, Life, in which they take root, indestructible, constant,

as a symbol. Mr. Eliot's use of symbols is a subject for a whole paper. But the whole of modern poetry in fact, depends for its subtlety and modernity on symbols.

everlasting, living on through changes, through eternity,
—so long as things last,—and the waves in its mighty sea
roll on to sink and float men and powers, creating and
destroying, yet living indestructible and amain.

"THE SENTIMENT OF NATURE" IN THE LITERATURE OF TRAVEL, 1850-1900

BY
S. C. DEB.

"Although the literature of travel," says Prof. Kirkpatrick "is not of the highest kind, and indeed, cannot be called a different branch of literature, yet a history of English Literature rightly assigns a space apart to such books, because this kind of writing, perhaps more than any other, both expresses and influences national predilections and national character . . . Books of travel and books inspired by travel have probably been more read in Great Britain than any other books except novels." It might be suggested in this connection, that the literature of travel has its periods of copious and scanty productivity, and also that the former are coincident with the eras during which the life of a nation pulsates in its highest intensity. If we look at the course of English Literature, we shall notice that the first great travel-books in English—Hakluyt's "Voyages," Purchas' "His Pilgrims," and Coryat's "Crudities" came to be written about the time that England wrested the empire of the seas from Spain; just as three centuries later the works of Sir Richard Burton, Miss Isabella Bird, William Gifford Palgrave, and Rudyard Kipling appeared during the years in which the foundations of the British Commonwealth were laid.

That, *the latter half of the nineteenth century*, roughly speaking, should have been the age during which

¹ C. H. E. L. (reprint) Vol. XIV (p. 255-256).

English travel-literature had its fullest, if not also its finest, expression, need not surprise us. The reasons that caused this efflorescence were numerous, and probably not a few of them are untraceable to-day. Yet it may be said that of these reasons the most important were, the revival of the doctrine of colonisation and of imperialistic ideas, the resurgence of the spirit of scientific discovery and exploration, and lastly the love of adventure which is so deeply ingrained a characteristic of the English race. A closer scrutiny may be made along these lines.

During the opening years of the nineteenth century, England, at first distracted by the Napoleonic Wars, and later on by internal political dissension, had hardly any time to interest herself deeply in her colonies. Besides the successful revolt of the American colonists had not yet been forgotten by the English people. The general attitude of the Home Government towards the colonies could be summed up in a phrase, "Let them well alone." Even as late as 1865, a Commission appointed to advise the British Government on the subject of territorial expansion in West Africa *unanimously* resolved that "all further extension of territory or assumption of Government . . . would be inexpedient." Gladstone was throughout his long political career averse to political expansion. But the days of the "Little Englanders" were drawing to a close; and even Beaconsfield in his old age was forced to use vague expressions about "imperial consolidation." The pioneer efforts of such travellers as Livingstone and Stanley in Central Africa, and of Speke and Burton in East Africa, made the Britisher aware of the existence of large and untapped areas, ready for occupation by any industrialist country willing to invest men and money in such an enterprise. Imperialism, till then associated with "Extremists," began to gain ground as a political creed; and thinkers so diverse as Carlyle, Ruskin, Sir Charles

Dilke, and Seeley, tried in their respective ways to formulate a philosophical doctrine based on its notions. The most influential of these thinkers—Ruskin—declared: “This is what England must do, or she will perish: She must found colonies as fast and as far as she is able, formed by her most energetic and worthiest men . . .”² He had, among his undergraduate listeners, such men as Cecil Rhodes, and Milner, and was thus not without influence on later travellers.

The literature produced by these pioneers,³ though extensive and full of detailed information on the social and economic life of the countries visited, was often written without any special regard being paid to the literary aspect. Not infrequently its manner savoured of the gazetteer or the guide-book, rather than of a travel-book mirroring a personality. The only one of the writers mentioned above, in whose pages information is not the sole point of interest, is Burton; and even he does not mind inflicting whole chapters on the reader, where it would be difficult to find a single picture of Nature, or a single individual utterance. Even then, the work of these writers had some value, since, as observed above by Prof. Kirkpatrick, it “influenced national predilections and national character,” by imbuing younger people with its notions, and by making the man in the street give up his apathy, and take a keener interest in adventure.

When we turn to the second line of enquiry, we notice that it is of somewhat smaller importance. The continuity

² “Oxford Lectures.”

³ Speke: “Journal of the discovery of the sources of Nile” (1863).

Baker, Sir Samuel, “The Albert Nyanza” (1866), “The Nile Tributaries” (1867).

Stanley, Sir Henry, “The Finding of Livingstone” (1872), “Through the Dark Continent” (1878), “In Darkest Africa”, (1890).

of the eighteenth-century tradition in science into the first half of the nineteenth is hardly a matter of dispute. In the latter half of the eighteenth century the voyages of Bougainville and Cook had been inspired almost solely by scientific considerations, and their success had established a vogue. The formulation of the most important scientific theory of modern times—first fully enunciated by Darwin and Wallace—on the basis of the observations made while travelling gave a great impetus to other writers,⁴ of travel-literature. Scientific expeditions were sent out by various countries to collect fresh facts, and enunciate new theories. A large mass of travel-literature thus came to be published. For example, the literature of Alpine climbing may be said to be coloured as a whole by the scientific point of view,⁵ though it must be added that even among the pioneers of Alpine literature there was a clear difference of attitude. Some insisted on putting the spirit of scientific investigation first, some, on the other hand, were equally insistent that though the scientific point of view was important, it could never be the central feature of travel-literature. But whatever their differences of opinion,⁶ there is no

⁴ Even Doughty was not immune from the spirit of scientific research. "Medain Salih" says he "was at that time not known to Europeans. What might be those inscriptions?...*Interested as I was, in all that pertains to Biblical research*, I was resolved to accept the hazard of visiting them". (Preface to the Second Edition).

⁵ *Vide* "Peaks, Passes, Glaciers", Tyndall's "Glaciers of the Alps" and "Mountaineering in 1861" (Everyman's Library Edn.) Whymper's "Scrambles amongst the Alps" (1860-69), especially Chapter XVI, Wallace "The Malay Archipelago" Mary H. Kingsley "West African Studies," etc.

⁶ A clash was inevitable. The history of the Alpine Club gives us an instance. Tyndall, a scientific worker, and a remarkably daring climber, resigned from the Alpine Club (1862) because of the pointed manner in which Leslie Stephen satirised the scientists at a banquet. For a detailed description *vide*, Claire-Eliane Engel, "La Littérature Alpestre en France et en Angleterre" (pp. 227-28). Librairie Dardel, Chambéry, 1930.

denying the fact that between themselves they produced a large mass of literature, and that some of their pages have a note of veracity, and a beauty of presentation not often surpassed by other writers. Noticeable in this province of writing are Prof. Tyndall and Leslie Stephen.

But the desire of scientific investigation or political expansion were not the sole nor even the most important motives. We shall notice that the literature produced by a third group of travellers, who were not inspired by either of the two motives mentioned above, surpassed the writings of the political and scientific writers both in richness and variety. These people travelled over the surface of the globe in search of beauty or adventure. The traits of energy and courage are so pronounced a feature of the English character that it seems hardly necessary for one to stress the point. This Viking strain very often takes the form of the love of travel, since *danger* and *excitement* are so constantly present in travelling. "The English" says Alexander Smith "are eminently a race of vagabonds . . . That wealthy people under a despotism, should be travellers seems a natural thing enough . . . But that England, where activity rages so keenly and engrosses every class, . . . should, year after year, send off swarms of men to roam the world, and to seek out dangers for the mere thrill and enjoyment of it, is significant of the indomitable pluck and spirit of the race"

For Tyndall's own work, *vide* pp. 136-37, 211-12, p. 215. "The Glaciers of the Alps" (Everyman's Library Edition).

7 "Dreamthorp" (World's Classics Edition, pp. 246-47).

In this connection, note Sir Charles Dilke's remark, "Greater Britain" "Americans or Britishers, we Saxons are all alike—a wandering discontented race; we go 4,000 miles to find us Sleepy Hollow, or Killian Van Rensselaer's Castle and the Americans, who live in the castle, picnic yearly in the Hollow come here to England to visit Burns's house, or to sit in Pope's armchair" (p. 161).

The dreams of the Imperialists, of statesmen like Sir Charles Dilke, Forster, and Joseph Chamberlain, and of workers like Cecil Rhodes, Gordon and Milner, may be said to have been realised in a few decades, so that by the year 1890, England had succeeded in building up an empire unparalleled in extent in the history of humanity. During these years the English travellers got a unique chance of satisfying their desires. The dangers of travelling had not yet been completely eliminated, and this added a spice of zest to the pleasure of sight-seeing.

In addition to the last point, it should be remembered that a fact of capital importance underlay the mass of literature produced by these writers. The Romantic movement in literature and art had made the "picturesque" fashionable—the "picturesque" as distinguished from the merely "beautiful"—and had left a deep and ineffaceable impression on the mind of the cultured section of the population. It has been asserted by a very competent authority, M. Paul Van Tieghem, that a feature of European Literature during the nineteenth century was the preoccupation of the writers of all countries with exotic life and landscape . . . "Surtout a partir du Romantisme, les souvenirs étrangers et même exotiques, entrent pour une part sans cesse grandissante dans la littérature. Ce sont pour Byron, le Léman, l'Italie et la Grèce, pour Flaubert, pour Renan, la Grèce et l'Orient, pour les Browning l'Italie, pour Pouchkine et Lermontov la Caucase, pour Mickiewicz la Crimée . . ." (La littérature comparée, Armand Colin Paris, 1931, p. 144). The generations after 1830 were deeply impregnated by this feeling, and J. A. Symonds was perfectly justified in saying in his essay on "The Love of the Alps" . . . "We are all more or less Pantheists, worshippers of 'God, in Nature,' convinced of the omnipresence of the informing mind." Even in the work of those writers whom we think

of as most unromantic—the Utilitarians and the Agnostics—this pre-occupation with nature and its ways is to be met with, and may be said to form an important element of their thought. For instance,⁸ J. S. Mill in his “Autobiography” (published 1873), took the opportunity of remarking that “the first introduction to mountain scenery made the deepest impression on me, and gave a colour to my tastes through life,” and Herbert Spencer, also writing towards the close of his long career, said (apropos of Emerson’s Grave), “Sleepy Hollow is so beautiful and poetical a spot as to make one almost wish to die at Concord for the purpose of being buried there.” The same note of joy and solace in Nature colours the whole of George Eliot’s “Life” and is to be met with even in her last volume “Theophrastus Such” (essay entitled “Looking Backward”); and even Samuel Butler could not resist the charm of Alpine scenery.

It is with the last group of writers that the present chapter is principally concerned, though one or two of the authors discussed here may possibly also be placed in the previous groups. Their pages, often hastily composed, and full of irrelevancies and imperfections, may yet claim to have exercised an important influence on the course of English life, and therefore stand assured of an honourable place in the annals of English Literature.

* * * * *

A few general observations may be made here :

(i) The literature of travel, rich and varied in quality as it is during the period under survey, has a

⁸ J. S. Mill “Autobiography” (World’s Classics, p. 48)
Herbert Spencer, “Autobiography” (Williams & Norgate, 1904), Vol. II.

“Life as related in her letters and Journals,” (3 Vols.; Blackwood & Sons, London, 1885). Edited by J. W. Cross. (passim)

“Alps and Sanctuaries” (passim), read especially his remarks on the “*pathos*” of a landscape, p. 30.

special charm at this stage, because of the fact that between the years 1850 and 1900, in spite of the swift increase of railways and steamships, the majority of writers were thrown back on their own resources, and their literature is often a record of man's fight with the forces surrounding him,⁹ and of his hard-won victory or heroic failure. More and more efficient machinery, and the invention of the cinema may be said to have destroyed the glamour of olden times, and to-day travel-literature has lost a great deal of its old starkness,¹⁰ and unconscious but unceasing insistence on the virtues of human courage and endurance.

(ii) In spite of the fact that there are exceptions, and some notable ones, it may be said that the literature of travel is by the circumstances of its composition bound to be superficial and unphilosophical in its treatment of Nature. The writer—he can hardly be called an artist—is almost uniformly unable to let his mind be completely permeated by the spirit of the surrounding landscape, there is inevitably a sense of disparity at heart, and even though this occasionally permits him to perceive and record

⁹ Sir Rich. Burton: "A Pilgrimage to Almedinah," etc. . . [of travelling in the desert]. . . "What can be more exciting? What more sublime? Man's heart bounds in his breast at the thought of measuring his puny force with Nature's might, and of emerging triumphant from the trial." (Vol. I, p. 219).

Edward Whymper . . . "We glory in the physical regeneration which is the product of our exertions (in Alpine climbing); we exult over the grandeur of the scenes that are brought before our eyes . . . ; but we value more highly the development of manliness, and the evolution, under combat with difficulties of those noble qualities of human nature—courage, patience, endurance, and fortitude" Fervid but true.

"Scrambles amongst the Alps" (1860-69)—(pp. 394-95).

¹⁰ The most entrancing travel-books of the present century are those where, by chance or intention, all mechanical aids had been set aside, e.g., Alain Gerbault "A la poursuite du soleil", Captain Scott's "Journal" (last chapters) and Bertram Thomas's "Arabic Infelix."

certain new features, it is fairly evident that the absolute ease and felicity of description which one meets with in the work of writers describing their every-day surroundings,¹¹ can hardly be equalled, either in truthfulness or intensity of vision, by those who have recorded their impressions of a foreign land.

(iii) This superficiality, and want of philosophic depth, are often aggravated by the diffuseness and irrelevancy of the writers; sometimes again owing to the deliberate practice of re-writing and prettifying certain passages with the intention of rhetorical effect.¹² The many irrelevant topics discussed in these travel-books, e.g., commercial enterprise, military and political adventure, social or scientific investigation, missionary activities, etc., will naturally have to be put aside before a clear estimate of the writer's work as a painter of nature may be formed. Thus we shall be forced to omit at least half the total number of pages, and even from the remainder a large deduction will have to be made, because of the writer not having been able to do his best.

¹¹ 1. Stevenson: "The Silverado Squatters" . . . pp. 48-50.

. . . . I wrote that a man belonged, in these days, to a variety of countries; but the old land is still the true love, the others are but pleasant infidelities Of all mysteries of the human heart, this is perhaps the most inscrutable. There is no special loveliness in that gray country (Scotland). . . I do not even know if I desire to live there; but let me hear in some far land, a kindred voice and it seems as of no beauty under the kind heavens, and no society of the wise and good, can repay me for my absence from my country "

2. Wordsworth—(to take only his prose): Guide to the Lakes p. 46, p. 99 et seq. (O. U. P. Ed.) Stevenson's descriptions of the Scotch moors, and sea-coast scenery in "Kidnapped", or Hardy (passim), with the most brilliant page from the pen of Kipling or Conrad, and one can easily feel this difference.

¹² Dickens's tinsel passage on the Niagara Falls in "American Notes" he seems to try to lash himself into the mood of prophetic utterance, but only succeeds in making his reader feel completely disgusted.

(iv) The central note of this mass of writing, therefore, is *description* rather than *interpretation*. The writer is frequently content with painting a picture of the surface of things; he naturally has neither the time nor the inclination to ponder his impressions deeply; he can very rarely soar to the mood of rapture that is derived of self-oblivion. Too often the search after the unusual or novel aspects of the picturesque is an obstacle in his way,¹³ and prevents him from feeling the influence of the mystical or tragic aspects in Nature. Even the most profound impression is bound to be dissipated, if the writer is in a perpetual hurry to record some new one, and is unable to sift and weigh his own experience.

* * * * *

Of the many writers of travel-literature who flourished between the years 1850—1900, only a few are of outstanding merit. As mentioned above, it will not be possible to discuss in detail the work of all those writers whose aim was either scientific observation or commercial or political enterprise. The writers who, it would seem, merit separate mention are :

(i) Sir Richard F. Burton, (ii) Miss Isabella Bird (later Mrs. Bishop), (iii) W. G. Palgrave, (iv) C. M. Doughty, (v) R. L. Stevenson, (vi) Rudyard Kipling, and (vii) Lafcadio Hearn. There are a host of smaller writers, some of them of exquisite powers, whom it will be possible to mention only in passing, if at all. Some of them are writers of high repute, and only the exigencies of space compel their exclusion. They may, at least, be named here, and in the succeeding pages a number of

¹³ That the most profound impressions need not be necessarily communicated by the exotic or the stupendous or even the cataclysmal aspects of Nature, is not easily understandable, but is true: e.g., Hardy's vision of Egdon Heath is to my mind more moving than any of Meredith's Alpine scenes or even Conrad's visions of the Eastern Seas.

references to their writings will be made, in order to give the reader some idea of their especial powers. Notable among these writers are: Lord Dufferin "Letters from high Latitudes" (1856), Alexander Smith "Dreamthorp and Last Leaves," Professor Tyndall "Hours of exercise in the Alps," and "Glaciers of the Alps," Alfred Russell Wallace "The Malaya Archipelago," Sir Leslie Stephen "The playground of Europe," Whymper "Scrambles amongst the Alps" (1860—69); Sir Edmund Gosse "Two visits to Denmark," Mary Kingsley "Studies in Western Africa," Bates "The Naturalist on the Amazon," Lady Anne Blunt "A pilgrimage to Nejd," Capt. Burnaby "A ride to Khiva" and "On horseback in Asia Minor," W. H. Hudson "The Purple Land," and "Nature in Downland," Samuel Butler "A First year in Canterbury Settlement," and "Alps and Sanctuaries."

SIR RICHARD BURTON

The work of Sir Richard Burton, enormous in bulk, and varied in subject-matter, offers a very puzzling appearance when taken as a whole. Sir Richard was a born traveller, with an undying and consuming passion for adventure; his character may be said to be an embodiment of the type described by Ishaaq the Poet in "Hassan." Yet his travel-books are far from being merely a record of romantic adventure; they are a confused mass where topics so various as sociology, anthropology, colonial projects, geographical quests, and even literary discussion are mixed up in an almost inextricable confusion. The description of exotic and varied scenery is a secondary matter in his works; only because of its persistence throughout the whole bulk of his writings, does it become an important and even absorbing feature. The mere variety of scenes painted by him is extraordinary—to the present writer his work is unrivalled in this direction—and the flexibility and

copiousness of his vocabulary remarkable. Much of his most individual writing is to be met with in the brief vignettes scattered over his pages in profusion; but not infrequently Burton steadies himself for a longer flight and presents us with a land or seascape in a more deliberate manner. He is probably happiest in his vignettes, but it would be somewhat unfair to dismiss his more elaborate landscapes with the faint praise bestowed on them by Mr. Edward Garnett.

The first and most outstanding feature in Burton's writings is his amazing personality—intense and unchanging to the last. It bears a strange resemblance to the type made immortal by the art of Byron,¹⁴ the character who flees from human society and culture to the free and pure life of Nature.¹⁵ Like the Byronic hero's, Burton's character is marked by a number of repellent traits, his sardonic and cynical humour, his unpleasant assumption of "superiority," his asperity, prolixity, pedantry, and love of the bizarre greatly detract from the impression that

¹⁴ Edward Garnett: "Friday Nights." First Series, Cape, 1922. (Essay on C. M. Doughty, p. 110)

Even the title of "The Wanderer" by which Burton called himself is reminiscent of Byron; besides his book also is called "A Pilgrimage."

"Burton's style is ordinary, vigorous and commonplace."

¹⁵ (i) "A Pilgrimage to Almedinah".

Volume I, p. 219. "The slavery of civilisation."

(ii) On occasions Burton is forced to confess the impossibility of adhering to this point of view permanently.

Vide "Highlands of Brazil," Vol. I, p. 333.

..... "Our admiration of the inanimate is being fast exhausted; the wildly beautiful, the magnificence of virgin forest, the uniform grace of second growth begins to pall upon us; we are tired of grand mountains, picturesque hills, and even of softly undulated prairie. The truth is we want humanity; we want a little ugliness, by way of relief; Anthropolos and his works are to the land he holds, what life is to the body, without them Nature lies a corpse or in a swoon"

The Latin tag about the man who changed the sky he lived under, but not his own soul, is true of Burton in the fullest degree.

would be otherwise produced on us. His manner is often forced and a jarring sensation results.

The Byronic want of humility and absence of contemplative power in the presence even of the sublimest aspects of Nature are to be met with in Burton as well. Attracted as he always is by the outward face of Nature, he can but rarely picture her in the abstract as having a life of her own, or as a group of forces ceaselessly driving the world onwards, to a preconceived goal or purpose. Nature remains for Burton a background—vivid and beautiful in itself—but a background all the same. Even on the rare occasions when his restless spirit allows him to ponder his impressions, he is unable to reach the mood of mystical rapture, which his romantic attitude leads us to expect.

But there are many directions in which his work is worthy of praise. He is a keen observer, and even if unpoetic in sensibility he is unquestionably deeply moved by the changeful moods and aspects of Nature.¹⁶ As a colorist, though sometimes almost garish in his descriptions, he is always forceful and striking, and though he does not always attempt to give us the tints and shades of a landscape, such as are to be met with in the work of the later writers, no one has succeeded in giving us a more numerous collection of scenes painted in a bold, glowing and always nervous manner.¹⁷

¹⁶ There are a few moments where the writer's imagination is touched deeply, and a phrase or a line of almost poetic beauty comes straight from his heart.

.... (Of a river in the Campos) "Of undefinable interest is the first sight of a newly-born stream in these lands; suggestive as the sight of an infant, with the difference that the source must grow to river-hood, whereas the child may never become a man. A panorama passes before the eyes". (The Highlands of Brazil, Vol. I, p. 177).

¹⁷ Especially is this true of one aspect of Burton's work—his "nocturnes" in words. Of all the travellers he is probably the

But Burton is most deeply moved when he is face to face with Nature : (i) in her most unadorned and starkest appearance—the Desert, and (ii) in her most terrible forms of energy. Even then a sense of mystic exaltation hardly expresses itself; there is only a stirring of the blood, and a quicker beat of the heart. The sight of lushness in Nature oppresses him with a peculiar melancholy : “ The faultless, regular, and uniform beauty and the deep stillness of this evergreen land, did not fail to produce that strange inexplicable melancholy, of which most travellers in tropical countries complain. In this Nature all is beautiful that meets the eye; all is soft that affects the senses; but she is a Siren, whose pleasures soon pall upon the enjoyer.¹⁸ . . .

“ The mind, enfeebled perhaps by an enervating climate is fatigued, . . . , it sighs for the rare simplicity of the desert. I have never felt this sadness in Egypt and Arabia, and was never without it in India and Zanzibar ” . . . (Lake Regions, Vol. II, p. 130). Almost twenty years after he again expresses the same sentiment, in almost the same words. “ In the forested land of the tropics Nature masters man; his brain is confused with the multiplicity of objects; he feels himself a prisoner in a gorgeous jail. Moreover some of us suffer from lasting sadness in the regions of evergreens, such as Central Africa, Brazil, and Western India But in

most varied and most successful in this direction; besides being a pioneer,

Vide (i) Goa and the Blue Mountains (1851), pp. 163-64.

(ii) The Highlands of Brazil (1869), Vol. II, an eclipse.

(iii) The Lake Regions (1860) Vol. II—A storm on Lake Tanganyika, pp. 121-2.

¹⁸ Contrast with Miss Bird's attitude, *vide* p. 53, *infra*.

the Desert man masters Nature. It is the type of Liberty, which is Life, whilst the idea of Immensity, of Sublimity, of Infinity is always present, always the first thought . . .” (The Gold Mines of Midian, 1878, p. 357).

The violent and the titanic in Nature thus evoke a ready response in Burton’s heart—since frequently it is not the idea of repose that draws him to her, but that of conflict. Even when he does seek calm and harmony, he is unable to bridge the gulf between himself and the scene he contemplates, e.g., in a passage on “ Paulo Affonso, King of Rapids ”:

“ The Quebrada, or Gorge, is here 260 feet deep, and in the narrowest part it is choked to a minimum breadth of fifty-one feet. It is filled with what seems not water, but the froth of milk, . . . which gives a wondrous study of fluid in motion.¹⁹ And the marvellous disorder, is a well directed anarchy, the course and sway, the wrestling and writing, all tend to set free the prisoner from the prison-walls. Ces eaux! mais ce sont des âmes! it is the spectacle of a host rushing down in ‘ liquid vastness ’ to victory, the triumph of motion, of momentum over the immovable. Here the luminous whiteness of the chaotic foam-crests, hurled in billows and breakers against the blackness of the rock, is burst into flakes and spray, that leap half-way up the immuring trough. There the surface reflections dull the dazzling crystal to a thick opaque yellow, and there the shelter of some spur causes a momentary start and recoil to the column, which at once gathering strength, bounds and springs onwards with a new crash and another roar. The heaped-up centre shows fugitive ovals and progressive circles of a yet more sparkling, glittering, dazzling light, divided by points of comparative repose, like the nodal lines of waves. . . .

¹⁹ The pseudo-scientific idea of exactness may be noted.

“ The general effect of the picture—and the same may be said of all great cataracts—is the ‘ realized ’ idea of power, of power tremendous, inexorable, irresistible. The eye is spell-bound by the contrast of this impetuous motion, this wrathful, maddened haste to escape, with the frail steadfastness of the bits of rain, hovering above, with the ‘ Table Rock ’ so solid to the tread, and with the placid, settled stillness of the plain and hillocks, whose eternal homes seem to be here. The fancy is electrified by the aspect of this Durga of Nature, this evil working good, this life-in-death, this creation and construction by destruction. Even so, the wasting storm and hurricane purify the air for life; thus the earthquake and the volcano, while surrounding themselves with ruins, rear up earth, and make it a habitation for higher beings . . .

“ I sat over the ‘ Quebrada ’ *till convinced that it was not possible to become ‘ one with the waters ’*; what at first seemed grand and sublime at last had a feeling of awe too intense to be in any way pleasurable and I left the place that the confusion and emotion might pass away.” [“ The Highlands of Brazil ” (1869) (Vol. II, p. 444, et seq.) I have intentionally quoted this long passage as it gives us a clearer insight into Burton’s peculiar manner of writing than most others from his pen. The reader will notice his acuteness of vision—Ruskin or Marcel Proust do not surpass Burton in acuteness at moments—displayed in such phrases as “ fugitive ovals,” “ the heaped-up centre,” the “ nodal lines of waves ”; but is it not also evident that the writer has allowed several blemishes to remain, and that the total impression is somewhat confused by the rhetorical outburst in the words, “ this evil working good,” etc.; and the commonplace moralising? And finally it will not be entirely extravagant to suggest that the egoism of the passage hardly has the noble accent that we meet with in Wordsworth, or even, to take

a poet less intense, Byron. Nobody can blame Burton for not having the succinctness and the suggestive power of the poets, since these can hardly be achieved in prose, but in spirit surely both types of writers may stand on the same plane.

Some of the points suggested in the foregoing paragraphs will be repeated in the following pages. The reason is obvious. For a traveller the visual aspect of things is naturally the most important: colour and light²⁰ or the absence of these two elements, are immediately felt; whereas the other senses of the observer come into play much less frequently or even intensely. How preponderatingly visual all writing about Nature must be,²¹ is realised the moment one desires to differentiate between various types of sounds or odours²² in the same way that one distinguishes between colours.

²⁰ But not expressed with either the same copiousness or the same felicity of discrimination. If one scrutinises the writings of authors who have excelled in description, one will soon notice, that while the colour-note is a commonly present feature of their work, they have been much more sparing in their pictures of light. Painting itself may be said to have been conventional and antiquated in this direction—not till Turner, and after him, the French Impressionists, is light taken earnestly as an element of pictorial composition “(La Lumière) . . . Aux yeux des impressionnistes, elle fut l’âme même de l’univers, à la fois constante et fugitive, sans cesse présente et jamais semblable à elle-même. . . . ils la virent vibrer: elle ne frappe, pas la terre. . . . par grands plans stables, elle se repand en atomes légers, pénètre les masses, les mêle à son rayonnement” Nothing of this sort can possibly be seized in language. In literature, one may not say with Manet “Light is the principal personage of my landscape” even to-day Henri Focillon “La Peinture aux XIX^e et XX^e Siècles” (1928). (cf. Charles Morgan: “The Fountain.” pp. 77-78. A fine but unsuccessful attempt).

²¹ Remy de Gourmont: “Le Problème du Style” (Mercure de France, Paris, 1924). “Les autres sens, le goût, l’odorat et le toucher, ont leur influence en littérature; des écrivains ont traduit par des mots, les impressions qu’ils leur ont fournies; mais cela ne va pas très loin, la vision et l’émotion demeurent les deux grandes sources du Style” (p. 45).”

²² In this province, Stevenson seems to the present writer, to be the keenest of all observers.

The colour-note is bound to be stressed by the writers of travel-literature for another reason: the other element of pictorial art—a sense of form—is exceedingly difficult to put into words. A painter may bring the various parts of a landscape into a formal order or relationship by arranging the masses of light and shade in his composition; but the poet, and in even a greater measure the prose-writer, are unable to do anything more than suggest such an order, and with the most extensive vocabulary and the most effective art at their command, it is impossible for them to produce a clear feeling of form on the reader's mind. Besides, the Englishman loves the use of colour—in picture as well as in poem—and can hardly be said to like subdued shades or subtle schemes; this explains why so many passages of travel-literature suffer from an excess of colour.²³

MISS ISABELLA BIRD

Miss Bird's work offers some points of similarity to Burton's; both travelled extensively and for many years, and both were attracted by the charm of the Orient.²⁴ Like Burton again Miss Bird was intensely interested in the mere act of travelling, and looked upon it as an act of escape from the conventions of civilised life.

²³ (i) Miss Bird "Rocky Mountains," pp. 23, 74, etc., Korea Vol. II, p. 129.

(ii) Symonds: Sketches in Italy and Greece, pp. 4-5, 24, 69, and 285.

(iii) Alexander Smith "Dreamthorp and other essays" (World's Classics), p. 105.

(iv) Lord Dufferin: "Letters from High Latitudes" (World's Classics), pp. 21-22.

²⁴ (i) "Unbeaten Tracks in Japan," Vol. I, p. 356, Vol. II, pp. 43-44.

(ii) "Korea," Vol. I, pp. 157-8, also pp. 165-6 (where she ends by saying: A description can only be a catalogue. The actuality was intoxicating."

The outstanding features of Miss Bird's writings are her intense love of colour, her passion for certain types of scenery suggestive of solitude and silence; the charm of forests and of wooded hill-sides, of wide sunlit spaces and of the glittering sheen of rivers and lakes. She is instinctively more fond of the gentle and the beautiful aspects of scenery than of the terrible and the sublime, though she has left a few unforgettable pictures of Nature in moments of fury or of savage beauty.²⁵

Profuse in her use of the coloured epithet,²⁶ she can claim as a special distinction the fact that most of her books were composed in the shape of letters written from the route of the journey; the accuracy of her notation is therefore less open to discussion than the work of those who rewrite their volumes from the notes made *en passant*. The glow of feeling under which she composed these letters had no time to cool, and while therefore she did not attempt to recollect and sift her impressions in tranquillity, her work gained in a certain freshness and spontaneity of perception, even while it lost in judgment.²⁷ This, coupled with the fact that her attitude is frankly emotional, makes

²⁵ A Snowstorm: "The Rocky Mountains," pp. 274—79 "Persia," Vol. I, pp. 27-28. A devastating flood "Korea," Vol. I, p. 224 et seq.

²⁶ . . . "There, in unspeakable solitude, lay a frozen lake. . . I found that owing to the depth of the snow I had ridden only fifteen miles in eight and a half hours, and must look about for a place to sleep in. The Eastern sky was unlike anything I ever saw before. It had been chrysoprased, then it turned to aquamarine and that to the bright full green of an emerald. Unless I am colour-blind, this is true. Then suddenly the whole changed, and flushed with the pure bright, rose-colour of the afterglow. . . ."

The Rocky Mountains, pp. 175-6.

²⁷ Her method at times has certain affinities with the technique of the Impressionists. She also tries to picture special moments, and seeks to produce a "totality of impression", refusing selection and avoiding minute detail; only the Impressionists selected their moments after long and arduous preparation; for her—a traveller hurrying forwards on her journey—there could be no such possibility.

her at times exaggerated and hectic in language, and unable to restrain herself at the proper moment. Often her descriptions tail off into mere catalogues of the various aspects of Nature, spread before her eyes, without any unifying or central power to crystallise the whole.

Unlike Burton, whose attitude in spite of his occasional diffuseness and contradictions, is yet marked by a central and unchanging note of love, Miss Bird's point of view shows signs of change during her career. Her earlier works were written from the point of view of the Romantic and a Pantheist—a sentimental Pantheist of the type of Bernardin de Saint-Pierre; for whom Nature is not merely the manifestation of divine beauty, but also of divine harmony. . . . “ Day dawned long before the sun rose, pure and lemon-coloured From the chill, grey peak above, from the everlasting snows, from the silvered pines, down through mountain ranges with their depths of Tyrian purple, we looked to where the plains lay cold, in blue grey, like a morning sea against a far horizon. Suddenly, as a dazzling streak at first, but enlarging rapidly into a dazzling sphere, the sun wheeled above the grey line, a light and glory as when it was first created . . . I felt as if, Parsee-like, I must worship. The grey of the plains changed to purple, the sky was all one rose-red flush, on which vermilion cloud-streaks rested; the ghastly peaks gleamed like rubies, the earth and heavens were new created. Surely, ‘ the Most High dwelleth not in temples made with hands ! ’ ”²⁸ (The Rocky Mountains, pp. 106-7.)

²⁸ 1. *Vide* Mme. Arvede Barine: “Bernardin de Saint-Pierre,” pp. 105-6: “ A force d’aimer la Nature, il la confond avec la Divinité et adore l’oeuvre au lieu de l’auteur. Il parle de la Nature avec une tendresse qui se communique a ce qu’il écrit et gagne son lecteur . . . ”

Cf. “ Unbeaten Tracks,” Vol. II. “ No Nature has no records,” p. 43, Vol. II.

2. Again p. 195—“ Here, again, worship seemed the only attitude for a human spirit, and the question was ever present,

But as she grows older, the descriptive element, though naturally never eliminated, becomes scarcer and feebler, and the note of rhapsody and fervid lyricism we meet with in her earlier pages, slowly dies away. The Wordsworthian lines about nature taking

“ . . . a sober colouring from an eye
That hath kept watch over man's mortality ”

may be used, if the comparison be permitted, also of Miss Bird's later writings. This should not be taken to mean that she ends by being a pessimist, or that her early romantic passion for the colourful or solitary aspects of Nature is ever completely effaced by the lapse of time.²⁹ Even in one of her last works, “ The Yangtze Valley ” (1899), she mentions these aspects, lovingly, e.g., in the following passage: “ Before we actually reached it, waves of sunset gold rolled down the pass, distant snow-cones blushed red, every peak took on purple or amethyst—there was a carnival of colour. The wind fell to a dead calm, there was a touch of frost in the dry air, when suddenly the whole glory of mountain and chasm died out, and the colour vanished, leaving only the distant snow peaks burning red against a sky of tender green . . . ”³⁰ Only such moments are rarer than before, there is now a willingness to perceive the “ grey ” as Browning calls it, side by side with the “ glory,” colour no longer thrills her as mysteriously or with as keen a sense of joy as before; she no longer feels

“ Lord what is man, that thou art mindful of him? or the son of man, that thou visitest him? ”

3. Also “ Six months among the Palm groves ” (1875), p. 125, p. 325, p. 392 (where she tries to reconcile the terrible and the bountiful aspects of Nature, and fails).

²⁹ *Vide* also “ The Yangtze Valley,” p. 348, 381, (colour), p. 407 et seq (the refreshment born of solitude).

“ Persia ” Vol. I, p. 14, p. 16.

“ Among the Tibetans,” p. 144.

³⁰ “ The Yangtze Valley,” p. 389.

impelled to fall down in worship at the sight of Nature's loveliness; there is a larger tolerance, in her heart for man and his ways. There is also a sense of spiritual weariness and insensibility in her last pages, very possibly these changes have been wrought by the "unimaginable touch of time." Yet she may claim as Wordsworth does³¹ that though the old feeling of rapture, has passed away

" . . . in my heart of hearts I feel your (Nature's)
might,

I only have relinquished one delight,
To live beneath your more habitual sway."

W. G. PALGRAVE

Of the four volumes written by Palgrave, only two³² "A Year's Journey through Central and Eastern Arabia" (1862-63) and "Ulysses" may be said to have been written from such a point of view as to merit discussion here. Palgrave's work has been severely criticised on the score of exaggeration and inaccuracy, and anyone reading his pages side by side with those of Burton, or Doughty will notice that his accent is more strident, and his language even more vigorously coloured than that of Burton. Of these volumes, the second is a series of essays describing various sights and scenes, and there is little or no unity of feeling between the two volumes.

The one feeling inspired by the first volume—"A Year's Journey"—is the sense of Nature's indifference to

³¹ Her work offers what is to my mind the central *psychological problem* at the back of this mass of literature. It is the picture of the human mind possessed by two opposing tendencies—(i) the Christian point of view, which in Puritanical England came to mean rejecting the external world as a delusion, a beautiful snare, and (ii) the purely Romantic and pagan worship of Nature as a revelation of the Presence of God. Only in Miss Bird's career the opposition never became so acute as to compel her to reject one or the other point of view.

³² Published in 1865 and 1887 respectively.

man's sufferings. Palgrave hardly expresses it in clear words anywhere; but if one were to put together the numerous passages in which man is shown struggling with the terrible environments surrounding him, the one feeling evoked in our hearts is of violent indignation with Nature. The nightmare³³ landscapes he depicts are graven on the reader's memory because of the very intensity with which they are seized: they are at a few moments almost unbearable: And yet it is this same writer, who in "Ulysses,"—published twenty years later, can thus apostrophise the beauty and life-giving qualities of Nature: "O balmy life-giving breezes of the wide Pacific, with enjoyment in every flutter of your wings; O golden glories of the evening sun-god, ere yet he withdraws from view within his cloud-built palace of amber and crimson, reared on the deep immensity of blue, long be yours to range and reign . . . Birth-right ill sold for any counter-exchange of elusive gain; Eden unequally bartered for the whole world of unrest and stirring that seethes and struggles without the island bounds. Long may these remain . . . long may they keep at bay the gods of the stranger . . . the science that strips to nakedness, the energy that consumes and destroys . . ." ³⁴

To reduce these fleeting impressions to any one unchanging attitude, or even to a dynamic notion seems hardly justifiable. Wilfrid Scawen Blunt's statement . . . "the nature he describes is human nature only" may partly explain the situation, but it hardly makes the complete somersault taken by the writer quite clear to us. And the fact that Palgrave does *not* pass on to a more astringent

³³ "A Year's Journey," Vol. I, pp. 91-92, the crossing of the "Nefūd," pp. 329-30. Vol. II, pp. 129, et seq. "The Red Desert."

³⁴ "Ulysses," p. 162.

mood of mind as he grows old, but to a more joyous and receptive one, is so completely unlike what would be expected, that the change of front is all the more interesting.

ROBERT LOUIS STEVENSON

The facts of Stevenson's life should be remembered if we are to judge this aspect of his work with exactness. Brought up in a sternly Puritanical household of the Midvictorian period, he was further handicapped by persistent ill-health, which made all forms of physical activity a torment, if not an impossibility, for long stretches of time.³⁵ Besides he was trained in scientific studies, his father's original intention being that he should be a lighthouse engineer. His spirit, however, remained unquelled, the Romantic in him persisted throughout his life in pushing him onwards, always in love with the face of danger; his own words explain this deep-seated feeling . . . "For my part, *I travel not to go anywhere*, but to go I travel for travel's sake. The great affair is to move; to feel the *needs and hitches of our life more keenly*; to come down off this feather bed of civilisation, and find the globe granite underfoot, and strewn with cutting flints. . . ."³⁶

When Stevenson wrote "An Inland Voyage" and "Travels with a Donkey" he probably had not passed completely out of the phase of marivaudage which his deliberate following of Sterne would suggest to our mind. There was too evident a search after the beautiful and sensuous aspects of Nature in these, if not in all the early works of Stevenson. He did not yet find it possible to let his mind be permeated by the atmosphere of a landscape;

³⁵ (i) *Vide* Graham Balfour, "Life" (passim).

(ii) Mrs. Stevenson's prefatory biographical note to Vol. V of the Tusitala Edition.

³⁶ The same note in more solemn language—is to be met with in "Will O' the Mill".

too often he frittered away his energies in describing unnecessary detail, and he paraded himself too ostentatiously in the foreground of his own pictures.

One point may, however, be noted here. Unlike most travellers Stevenson had spent some time in trying to familiarise himself with the technique of the art of painting.³⁷ It is doubtful if he ever could have become a painter of very great merit had he actually turned to pictorial composition, yet it hardly seems too far-fetched to say that the fair knowledge of the principles of art he possessed gave him a certain skill in bringing out his effects, even in prose. If one were to compare the scenes painted by him with those of other writers, many will probably grant that he is surpassed by Burton in mere variety, and Doughty in suggestion and intensity; but in the exquisite shading, and in his love of subtle effects, and avoidance of strong tones he is their superior.³⁸ Again and again he reverts to the idea that what we love in Nature is practically what we have learnt to love in the work of the artists, e.g., "It is rather in Nature that we see resemblance to art,³⁹ than in art to

³⁷ The essay entitled "Fontainebleau" in "Across the plains and other studies" is a picture of his own life as lived among a community of painters. It was in Barbizon—the artist colony where Millet and Theodore Rousseau lived in the years 1850–1875—that Stevenson met the lady he afterwards married. She was herself deeply interested in painting, and besides Stevenson's most influential friend during this period was his cousin, R. A. M. Stevenson, who later on became Professor of Fine Arts, University College, Liverpool. "I can remember R. L. S."—(passim).

³⁸ Also, Graham Balfour's "Life," p. 33, "I was never done drawing and painting, and even kept on doing so until I was seventeen or eighteen . . . also, p. 50 "Now also began the joys of illustration." Stevenson had a very modest opinion of his own powers.

³⁹ The admirable discrimination between the two types of landscape-painting—Japanese and European—in one of his early essays "By-ways of Book illustration" (last paragraphs); or the sentiment underlying "A quiet corner of England," p. 206 and p. 169. *Vol. XXVIII of the "Tusitala Edition."* Only a critic trained in

Nature . . . The forms in which we learn to think of landscape are the forms that we have got from painted canvas " (Essays of Travel, An autumn effect, pp. 109-10); or a few years after . . . " I own I like definite *form* in what my eyes are to rest upon; and if *landscapes* were sold . . . one penny plain and two pence coloured, I should go to the length of two pence everyday of my life . . ."⁴⁰

In discussing Stevenson's work in this chapter, it must also be remembered that a great deal of his finest writing on this subject is to be met with outside the volumes under discussion. The feeling of desolation and terror inspired by a wild sea-beach, e.g., in "The merry men" and the shipwreck scene in "Kidnapped;" the sense of cruel hush and over-powering lassitude induced by the heat of a tropical climate, e.g., in "Ollalla," are all outside his travel-books. But even in these volumes there are passages of description and moments of vision that arrest us. As with all Romantics, colour, solitude, the sense of the bizarre or the sublime in Nature are aspects that deeply move him. But unlike Burton or Miss Bird, Stevenson uses his colours with all the craftsmanship of a trained artist, e.g., . . . "this gusty autumn morning, an untimely smell of hay, on the opposite bank of the Allier the land kept mounting for miles to the horizon; a tanned and sallow autumn landscape, with black blots of firwood, and white roads wandering through the hills. Over all this the clouds shed a uniform and purplish shadow, sad and somewhat menacing, exaggerating height and distance, and throwing into still higher relief the twisted ribbons of the highway"⁴¹ or a few pages later . . . "a fine wild landscape to the South.

the arts of design could have made some of these points. A similar passage may be met with here: Stevenson eulogises the Barbizon School while condemning the Impressionists.

⁴⁰ "Travels", p. 71.

⁴¹ "Travels", p. 35.

High rocky hills, as blue as sapphire, closed the view, and between these lay ridge upon ridge, heathery, craggy, the sun glittering on the veins of the rock, the underwood chambering in the hollow, as rude as God made them at the first."⁴² In his early years it is the beauty, the charm of scenery that attracts him—a dawn in the Cevennes,⁴³ the Forest of Fontainebleau;⁴⁴ the sea-fog mounting up from the Pacific,⁴⁵ and obliterating everything, or the stars as they hang down from the vault of heaven on the occasion of a night-drive in California;⁴⁶ but the pain and the endless agony implicit in Nature's workings are not expiated upon by him. But a day comes when there is a change, and he is forced to say: "But none is clean: the moving sand is infected with lice; the pure spring where it bursts out of the mountain, is a mere issue of worms; even in the hard rock the crystal is forming" and horror-stricken by the carnage of life he exclaims: "And to put the last touch upon this mountain mass of the revolting and the inconceivable, all these (forms of life) prey upon each other's lives tearing other lives in pieces, cramming them inside themselves . . ."⁴⁷ This side of Nature—the meaningless waste and cruelty of life—repels him, and it is therefore no longer possible for him to keep constant in his faith in the beauty and benevolence of Nature. Standing in the midst of the fairy landscape of the Pacific Islands he is no longer always attracted by the outward beauty, the colourful scenery; the mood communicated to his mind is expressed in the following words: . . . "a last touch of horror to the

⁴² "Travels", p. 71.

⁴³ "Travels": Chapter "A Night Among the Pines."

⁴⁴ "Across the Plains": Chapter entitled "Fontainebleau."

⁴⁵ "The Silverado Squatters," pp. 157-59.

⁴⁶ "The Silverado Squatters," pp. 190-92; specially p. 194.

⁴⁷ "Across the Plains": Essay entitled "Pulvis et Umbra," p. 291, p. 292.

thought of this precarious annular gangway in the sea that even what there is of it is not of honest rock, but organic, part alive, part putrescent; even the clean sea and the bright fish about it, poisoned, the most stubborn boulder burrowed in by worms, the lightest dust venomous as an apothecary's drugs. . . ."⁴⁸ We have indeed moved far away from the early pagan sensuous delight in Nature.

Stevenson's attitude thus remains a somewhat inexplicable one; two opposed feelings strive for mastery in his heart. To the last day of his life instinctively drawn by the beauty and glamour of Nature, and desiring to find a repose he did not know in his own life in her bosom, he is often brought to realise the other aspect, and is forced to confess that the goddess he has so long worshipped might possibly be a cruel and dangerous siren. This duality of vision became a recurrent feature of his later writing, though as has been pointed out above, he instinctively leaned to the first attitude. And the few moments when he found peace in his own heart were, to quote his own words, when he "took the universe with a grosser faith."

C. M. DOUGHTY

The Arabic proverb "Voyaging is victory" finds no better example than in the strange and remarkable prose epos of C. M. Doughty. An Elizabethan, born three centuries too late, he revived not merely the idiom and style of "the divine muse of Spenser," but captured, as did none other, the spirit that had inspired his beloved Master's contemporaries, Raleigh, Drake, Frobisher, and Lawrence,

⁴⁸ "In the South Seas," p. 159. In this connexion Oscar Wilde's gibe might be remembered: "I see that romantic surroundings are the worst surroundings possible for a romantic writer. In Gower Street Stevenson could have written a new 'Trois Mousquetaires.'" In Samoa he wrote letters to the *Times* about Germans." ("De Profundis," Methuen, 1912, pp. 16-17.)

in their pursuit of glory. There is no record in the literature under review so expressive of the indomitable spirit of the English race as the bizarre volumes entitled "Travels in Arabia Deserta."

When Doughty's solitary travel-book came out in the year 1888, it met with very faint welcome. Everything conspired to go against the writer. The enormous size of the book, its bizarre style, the subjects discussed in its pages, all made the average reader turn away from the volume in despair. The writer had even proclaimed with truly Elizabethan bravado, "The book is not milk for babes: it might be likened to a mirror, wherein is set forth faithfully some parcel of the soil of Arabia, smelling of sámn and camels."⁴⁹ No wonder that the easy-going reader should have given Doughty a very wide berth, and amused himself with less strenuous reading!

The book is an exceptional one in every way; more than everyone else who has written about Arabia, Doughty may be said to have succeeded in capturing the atmosphere of its landscapes, and set it down in his pages.⁵⁰ This he achieved not by means of lengthy or elaborate descriptions, but by the use of the sudden flash, the brief vignette, and the "luminous" word. There is no lusciousness in Doughty, something of the starkness of Desert Arabia has passed into his best pages, and there is no will-o'-the-wisp search for beauty such as vitiates the writings of some others. "As for me who write, I pray that nothing be

⁴⁹ Preface to the First Edition.

⁵⁰ (i) The critics and historians of English literature ignored the very existence of the book. Saintsbury does not mention it in "XIX Century Literature", and what is more surprising is that Prof. Kirkpatrick in the "Cambridge History of English literature" (1913), does not refer to it in even a footnote. So also Prof. Hugh Walker in his exhaustive study "The Literature of the Victorian Era" dismisses it without saying a word about it. (p. 1041.)

(ii) It must also be added that there are numerous pages where the subjects discussed do not interest the common reader in any way.

looked for in this book, but the seeing of an hungry man, and the telling of a most weary man; for the rest " he adds proudly " the sun made me an Arab, but never warped me to Orientalism " (Vol. I, p. 56).

Doughty uses none of the aids that other writers could summon to their assistance; the coloured word, the variety of contrasts that most scenery offers, the evocation of the beautiful or the sensuous in Nature; his subject precluded all such adventitious help. Nature in her sternest, starkest and most unchanging aspect was the theme he had chosen, how could he possibly conjure up the beatific vision that had charmed Miss Bird or Stevenson? His manner, at its best, suggests a comparison with that of such an etcher as Meryon, who, by drawing a couple of lines, reveals infinity to our eyes. Describing the bleakness of the land where he sojourned he says: " Highland Arabia is not all sand; it is dry earth, nearly without sprinkling of the rains. All the soft is sandy; besides there is rocky moorland, and much harsh gravel, where the desolate soil is *blown naked by the secular winds.*" or " In the lava clefts and gravel of the sharp Harra about, appeared only few springing blades of herbage, and rare bushes of the desert; locusts had devoured the thin spring of grasses, *so that the wild hay for the Sheikh's filly was fetched from a day's distance in the underlying sand plain.*"⁵¹ The same incisiveness—as of a diamond-point cutting across a sheet of glass—comes out

⁵¹ Vol. I, p. 56. Using the word in the same sense that Milton gives it when he speaks of "*a secular bird, ages of lives*". (Sams. Agon. l. 1707). Edward Garnett has hit off this point well. "Doughty has surely succeeded better than any other English traveller, in fashioning a style, and forging and tempering it so as to bring the reader into intimate contact with the character of the land he describes, while contrasting with it artistically the traveller's racial spirit. Doughty forges and smelts words as only a learned man can" . . . "Friday Nights" First Series, Cape, 1922 (p. 110). It might be remarked that he also revives and resuscitates them.

whenever he contrasts the eternal, unchanging landscape, with the brief span of man's existence: "We journeyed forth in high plains, . . . and in passages, stretching betwixt mountain cliffs of sandstone cumbered with infinite ruins of fallen crags, in whose *eternal shadows we built the booths of a day*. One of these quarters of rock had not tumbled perhaps in a human generation; but they mark years of the sun, as the sand, a little thing, in the life-time of the planet;"⁵² or "The Semitic East is a land of sepulchres; Syria, a limestone country, is full of tombs, hewn, it may be said, under every hill-side. *Now they are stables* for herdsmen and open dens of wild creatures . . ." ⁵²

Yet, though normally what Doughty recounts is the tale of the daily misery, and the interminable strife of man fighting a losing battle with Nature, in his attempt to win the mere necessities of life, it must be added that in a few places he has intentionally sounded a different note "Out of the strong came forth sweetness." It is thus that after describing the long drawn-out torture of a summer day spent in the wilderness when "the worsted booths leak to the fiery rain of sunny light" Doughty goes on to give us a few lines of almost idyllic charm. . . . "The lingering day draws down to the sun-setting; the herdsmen, weary of the sun, come again with the cattle to taste in their *menzils* the first sweetness of mirth and repose—The day is done and there rises the nightly freshness of this purest mountain air and then to the cheerful song and the cup at the common fire. The moon rises ruddy from that solemn obscurity of jebel like a mighty beacon: . . . ,⁵³ or languid with hunger, "The summer night's delightful freshness in the mountain is our daily repast; lying at rest amidst

⁵² Vol. I, p. 402, Vol. I, p. 169.

⁵³ Vol. I, p. 323.

wild basalt-stones under the clear stars in a land of enemies, I have found more refreshment than upon beds and pillows in closed chambers—Hither lies no way from any city of the world, *a thousand years pass as one day-light*; we are in the world and not in the world where Nature brought forth man, an enigma to himself . . . And looking then upon that infinite spectacle, this life of the wasted flesh seemed to me ebbing, and the spirit to waver her eyes wings unto that divine obscurity . . .”⁵⁴ But such heaven-sent moments must needs be rare. Doughty’s attitude to Nature is normally astringent if not bitter in tone. There are moments of rapture, but they come only at rare intervals, and his own words explain to us the reason why. Even, he—the indomitable—is tired of the unceasing strife with Nature, and in many of his pages a weariness of spirit is apparent. What he sees is “an iron desolation; . . . a hard-set face of nature without a smile for ever, a wilderness of burning and rusty horror of unformed matter. What lonely life would not feel constraint to trespass here! . . . There is a startled conscience” says he “within a *man of his mesquin being, and profane, in presence of the divine stature of the elemental world . . .*”⁵⁵ And it is in this awesome and unrelenting shape that Nature commonly presents herself to Doughty’s eyes.

RUDYARD KIPLING

Though Rudyard Kipling has written three volumes which can hardly be placed elsewhere than under the rubric of travel-literature, it should be remembered that the profoundest interpretation of the relations of man and nature from his pen, is to be met with elsewhere—in

⁵⁴ Vol. I, p. 473.

⁵⁵ Vol. I, p. 405.

his poetry, or in the collections of stories entitled "The Jungle-Book" (2 Vols.).⁵⁶ Then again, the writer has himself warned us in the preface against our taking these occasional papers too seriously. To estimate a writer's merits on the basis of his most ephemeral pages is always reprehensible; and we should therefore remember Kipling's warning when reading these pages.

As Kipling says, these volumes are merely reprints of the articles contributed by him to various papers; "From Sea to Sea" appeared in the shape of articles in the columns of the "Pioneer," and the "Civil and Military Gazette" between the years 1887—89; "From Tideway to Tideway" was published in the "Times" in 1892.⁵⁷ In these volumes there is no peculiarly individual attitude delineated by the writer. Kipling contents himself with description,—superb description, it must be said—but, hardly attempts anything deeper. But the extremely acute powers of perception, and the vividness of his phrase make not a few passages of his live in our memory. The purely poetic suggestiveness of phrase elsewhere met with in his pages, is only rarely present; but at times he can transport us with the large and passionate accent of a poet:
 "(Dawn on the Burra Talao, Boondi). . ." Every fair morning is a reprint, blurred perhaps, of the First Day; but this splendour was a thing to be put aside from all

⁵⁶ For a clear statement of the notion underlying these stories *vide* Firmin Roz: "Le Roman Anglais contemporain" (1912), pp. 200-205.

⁵⁷ Kipling's work has a special quality about it—he first among the greater English writers took up India as the subject of his writing. This he did just about the time when the new ideas of Imperialism were making the English feel interested in India. Before him several writers, e.g., John Leyden, Heber, and Meadows Taylor had attempted to portray Indian life and manners; but with the exception of Sir Charles Dilke nobody had tried to give a description of Indian scenes.

Cf. Sir Charles Dilke: "Great Britain," p. 480.

other days and remembered. The stars had no fire in them and the fish had stopped jumping when the black water of the lake paled and grew grey. While he watched it seemed to the Englishman that voices on the hills were intoning the first verses of Genesis. The grey light moved on the face of the waters, till, with no interval, a blood-red glare shot up from the horizon, and inky black against the intense red, a giant crane floated out towards the sun . . .⁵⁸

The word "mystic" has become almost unavoidable in discussing Kipling to-day. Such an attitude is probably justified when we speak of Kipling's work as a poet; but in his prose writings—especially in the volumes discussed here,—there is but little evidence of such a quality. These pages are characterised by others—keenness of vision, the faculty of seizing the atmosphere of strange and unfamiliar places at a glance; the love of the eerie and the phantasmal, an instinctive power of selecting the essential features of a landscape. Vision is evidenced by brief vignettes, e.g., "The foot slides on a reef polished and black as obsidian where the wind has skinned an exposed corner of the road down to the dirt ice of an early winter" (*Letters of Travel*, p. 111), or "The sea was smoked glass; reddish-grey islands lay upon it under fog-banks that hovered fifty feet above our heads," or "I have seen timber fly down the Ravi in spate; and it was hooked out as ragged as a tooth-brush." The dead city of Amber moves him to exclaim ("the sound of a piece of plaster falling") the sound of its fall was hollow and echoing, as

⁵⁸ (i) "From Sea to Sea," Vol. I, p. 189.

(ii) Also "From Sea to Sea," Vol. II—The gorge of the Yellowstone, pp. 110-11, the whole passage is worth marking.

(iii) The "Landscape" in an Indian Coalmine, pp. 315. (Kipling uses the word "landscape" himself).

(iv) "Letters of Travel": Night and morning near Monadenock, pp. 5-6, as a piece of colour—superb.

A blizzard, pp. 111-12.

the sound of a stone in a well. Then the silence closed up upon the sound, till in the far-away courtyard below the roped stallions began screaming afresh. There may be desolation in the great Indian Desert to the westward, and there is desolation on the open seas; but the desolation of Amber is beyond the loneliness either of land or sea. . . ."⁵⁹

And there are moments when he feels the littleness of man and his works in the presence of the titanic powers of Nature; the contrast making him feel a certain sober satisfaction. "It is wholesome and tonic," he says "to realise the powerlessness of man in the face of these little accidents (of Nature). The heir of all the ages, the annihilator of time and space, who politely doubts the existence of his Maker, hears the roof-beams crack and strain above him (because of an earthquake), and scuttles about like a rabbit in a stoppered warren . . . Given a violent convulsion (only just such a slipping of strata as carelessly piled volumes will accomplish in a book-case), and behold, the heir of all the ages is stark raving mad—a brute among the dishevelled hills."⁶⁰ This note is not a very frequent one with Kipling. But one must observe how different this is from the frame of mind in which Pascal wrote, "*L'homme n'est qu'un roseau, le plus faible de la nature; mais c'est un roseau pensant. Il ne faut pas que l'univers entier s'arme pour l'écraser . . . Mais quand l'univers l'écraserait, l'homme serait encore plus noble que ce qui le tue : parce-qu'il sait qu'il meurt; et l'avantage que l'univers a sur lui, l'univers n'en sait rien*" (*Pensées*.) Of the two attitudes, unquestionably the finer and nobler is

⁵⁹ From *Sea to Sea*, Vol. I, p. 22, also see the passage on Chitor, p. 96., and on the Palace of Boondi, p. 171, et seq. (the finest of all the descriptions in the volume, but too long to be quoted in full).

⁶⁰ From *Tideway to Tideway*, p. 62 (Volume entitled "*Letters of Travel*").

A similar note is to be met with in his short story "How Fear came to the Jungle" (*The Jungle Book*).

Pascal's. But it must be added in conclusion that the notion of Nature, crushing man out of existence—blind matter destroying spirit—is a rare one in Kipling anywhere, and that taking his output as a whole, we shall be justified in saying that he is one more believer in the benignity of Nature.

LAFCADIO HEARN

An almost exceptional opportunity of being the first fully-informed interpreter of Japan to Western people, came to Lafcadio Hearn. After a few obscure years of literary vagabondage in the United States, Hearn was appointed Japanese correspondent, to an American paper. Shortly after his arrival he was appointed to the staff of the University of Tokyo, as lecturer in English Literature (1891). Here he came under the spell of Japanese ideas, and this attitude was further strengthened by his marrying a Japanese lady, and becoming a naturalised citizen. Till the year of his death in 1904, Hearn remained in the country where he had originally gone for a brief sojourn, and it was on Japanese soil that he wrote the volumes that made him famous.

One would expect that with such exceptionally favourable circumstances to help him Hearn would have been able to come into close contact with every aspect of Japanese life; but the actuality was somewhat different. "That (Hearn states the Japanese point of view so well) on the mere strength of impression is shown by the fact that though he married a Japanese wife, he could neither speak to her nor to his children in their own language nor after a residence of 14 years could he so much as read a Japanese newspaper."⁶¹ A certain saccharine sweetness of

⁶¹ C. H. E. L. (Reprint) Vol. XIV, pp. 165-66.

manner—especially disappointing in these circumstances—is to be noticed in Lafcadio Hearn's interpretations of the life of Old Japan. He sentimentalised all that he saw, and because his view was so uniformly roseate, he succeeded in making the reader feel at times out of sympathy with him, if not positively a little incredulous.⁶²

But whatever our attitude towards Lafcadio Hearn's interpretations of Old Japan, it will be readily granted that on the few occasions on which he allowed himself to depict the mere background of this life, he succeeded in capturing, to a remarkable degree, the spirit of the Japanese scene. Its entrancing and melancholy loveliness, the haunting beauty of its gardens, its pellucid and cameo-like effects, the absence of violent colour-effects, the subdual of colour to tints, the absence of shadows from its landscapes, all these and many more features made a deep impression on him.

He was not however blind to the more stern aspects of the Japanese landscape, witness the following :

"A tremendous line of dark iron-coloured cliffs, towering sheer from the sea without a breach . . . here and there along this terrible front, monstrous beetlings, breaches, fissures, earthquake-rendings . . . Enormous fractures show lines of strata pitched up skyward Along this goblin coast on a wild day there would be no possible chance for the strongest swimmer or the stoutest

⁶² The following caustic lines hit off the point very well :—

"J'ai beau trouver sympathique

Feu Loufouquadio

Ses Japs en sucre candiot

Son Boudha de boutique—"

Paul—Jean Toulet, "Copies" quoted by Schwartz: "The Far East in French Literature" (145).

boat . . ."⁶³ This vision is worthy of old Hiroshige's brush. But averagely the note that is present in his pages is one of delicate and suave beauty: the writer being content merely with the beautiful, and desiring no other thing than a momentary glimpse or impression of the lovely:

. . . "These Oriental landscapes possess charms of colour extraordinary—phantom-colour, delicate, elfish, indescribable created by the wonderful atmosphere. Vapours enchant the distances, bathing peaks in bewitchments of blue and grey of a hundred tones, transforming naked cliffs to amethyst, stretching *spectral gauzes across the topazine morning*, magnifying the splendour of noon by effacing the horizon, *filling the evening with smoke of gold*, bronzing the waters, banding the sundown *with ghostly purple and green of nacre* . . . It is the mists that make the magic of the backgrounds; yet even without them there is a strange, wild, dark beauty in Japanese landscapes, a beauty not easily definable in words. The secret of it must be sought in the extraordinary lines of the mountains, in the strange abrupt crumpling and jaggings of the ranges, no two masses closely resembling each other, every one having a fantasticality of its own . . . The general characteristic is abruptness, *and the charm is the charm of Irregularity* . . ."⁶⁴ It is on some such note of lyric loveliness that one must close, if one is to give a fair notion of Hearn's manner.

As mentioned above, a large number of writers cannot be discussed separately, owing either to the exigencies

⁶³ "Glimpses" (First series), pp. 207-208. Hiroshige's pictures of "The Wave at Satta Point" (from thirty-six views of Fuji), or "the Temple at Kwannon" (No. 49, of the "Provinces" series) both reproduced by Basil Stewart, "Japanese Colour Prints" (Kegan Paul, London, 1922) will set at rest any doubts on the point of Hearn's accuracy.

⁶⁴ "Glimpses" (Second Series), pp. 228-229.

of space, or to the scantiness of their output. But a few general notions may again be put down here :

- (i) There is in a number of the writers mentioned above, much accurate notation in the direction of colour and the visual aspects of landscape, only it is spread over so wide a surface of writing as not to merit being noticed as a clearly definable attitude in their work.⁶⁵
- (ii) Even in those volumes where the writer's love of Nature makes itself a definitely perceptible and separable aspect of his work, there is often too extravagant a use made of colour,⁶⁶ and the absence of moderation and restraint takes away from the convincingness of the impression. Among those writers whose negligence in this respect mars the beauty of their work, two only need be specified as examples : J. A. Symonds and Alexander Smith. Both of them are keen observers, both are passionate lovers of Nature, but in both the expression is frequently too over-coloured.
- (iii) Again, in a number of cases, a fine page is spoilt because of the writer's desiring too evidently to convey a moral to us; or his attempting to outline a philosophy on insufficient material. Both the moralising and the philosophy are germane to the subject; only the writer who attempts to give us these, must have a wide range of experience, the power

⁶⁵ Cf. Sir Edmund Gosse's beautiful passage on the character of Danish Scenery: "Two visits to Denmark," pp. 17-18.

⁶⁶ "Eothen" (1844) may be taken as an early example of this manner; possibly its vogue made it a common mannerism.

of detachment, and a sternness of moral fibre. If, as sometimes happens, these qualities are not present in the writer, the words ring hollow. In a passage called "A lark's flight"—a moment characteristic of Nature's indifference to Man—the writer is not content with painting the scene, but spoils the effect of an otherwise beautiful page by interpolating unnecessary and obvious moralising.⁶⁷ So also W. H. Hudson, otherwise a fine and often an impeccable writer,⁶⁸ falls into the same mistake in his volume entitled "Nature in Downland."⁶⁹ The page is superficial and immature; though Hudson has brought out the feeling of cyclical recurrence in Nature, the sense of meaningless waste has not been fully emphasised, we have not yet reached the mood in which we see "into the life of things."

- (iii) Over and above all, the preceding generation of writers, Romantic poets who believed implicitly in Nature's benevolence—may be said to have coloured the imagination of the smaller writers of this period. A certain amount of writing in these years is therefore

⁶⁷ Prof. Hugh Walker in his "Literature of the Victorian Era" has praised Alexander Smith's work on the score of its accuracy and beauty, (p. 523), and of this essay he says "I have compared it to the knocking at the gate in Macbeth, for I have found nothing else in literature comparable to these two passages."

⁶⁸ "Nature in Downland" (Dent's "Open-air Library" Edition), pp. 12-13; p. 23; p. 193—Yew trees—the last passage especially worth marking.

⁶⁹ "Nature in Downland" The passage is too long to be quoted in full.

But the paragraph commencing . . . p. 181. "Let us imagine a god" gives one an idea.

merely imitative. As Mr. Saintsbury bluntly says: "We have nature, not as Jones or Brown saw it for himself; but as he saw it through the spectacles of Mr. Ruskin or Jefferies"⁷⁰ It therefore became fashionable for one to pay homage to the Wordsworthian sentiment:

. . . Nature never did betray
The heart that loved her, . . .

even when there was no corresponding depth of feeling in one's own heart. Optimism—not the sobered optimism of Wordsworth, writing after "a deep distress had humanised his soul",

"But welcome fortitude, and patient cheer,
And frequent sights of what is to be borne.
Such sights, or worse, as are before me here:—
Not without hope we suffer and we mourn." . . .

[Stanzas on Peele Castle.]

but the easy-going and superficial optimism of the observer who can merely see the external face of Nature, and cannot probe deeper, is almost too frequent a note. An unwillingness to look at the harsh, the repellant, or the ruthless aspects of Nature is unconsciously imposed upon themselves by many of these writers, in their persistent search after the beautiful; they are thus unable to realise the eternal duality of Nature's ways.⁷¹ The onesidedness of

⁷⁰ Nineteenth Century Literature, p. 466.

⁷¹ Cf. Remy de Gourmont: "Physique de l'Amour" p. 239. (Mercure de France, Paris, 1924.)

"Un philosophe anarchiste, disciple attardé et naïf de Jean Jacques, a cru démêler dans la nature un altruisme universel; . . . et abusé, sous prétexte d'incliner les hommes à la bonté, du droit que l'on a de se promener dans la nature sans la voir et sans la comprendre. La nature n'est ni bonne, ni mauvaise, ni altruiste, ni égoïste; elle est un ensemble des forces don't aucune ne cède que, sous une pesée supérieure, sa conscience est celle d'une balance; étant d'une indifférence parfaite, elle est d'une équité absolue."

such writing, though explicable in the circumstances, is manifest to every reader. But that only confirms one in the belief that the central attitude of this mass of literature is one of optimism, and its underlying sentiment one of love and confidence in the ways of Nature.

BIBLIOGRAPHY

Author's name.	Title of Book.	Place of Publication and Publisher.	Year.
1. Baker, Sir Samuel	"The Albert Nyanza"	London	.. (1866, 2 Vols.)
	"The Nile Tributaries of Abyssinia."	Do.	.. (1867)
2. Bates, H. W. ..	"The Naturalist on the Amazon."	Do.	.. (1863)
3. Bird, Isabella, (later Mrs. Bishop).	"Among the Tibetans"	Do. (Religious Tract Society).	(1864)
	"Six months among the Palmgroves."	Do. (John Murray).	(1875)
	"Unbeaten tracks in Japan." (2 vols.).	Do. do. ..	(1880)
	"Journeys in Persia & Kurdistan." (2 vols.).	Do. do. ..	(1891)
	"Korea and her neighbours." (2 vols.).	Do. do. ..	(1898)
	"The Yangtze Valley & Beyond."	Do. do. ..	(1899)
4. Blunt, Lady Anne.	"A Pilgrimage to Nejd." (2 vols.).	Do. do. ..	(1881)
5. Burnaby, F. (Capt.).	"A Ride to Khiva" ..	Do. do. ..	(1876)
	"On Horse Back through Asia Minor." (2 vols.).	Do. do. ..	(1877)
6. Burton, Sir Richard F.	"Goa & the Blue Mountains."	Do. Bentley	(1851)
	"Pilgrimage to Almeida and Mekkah." (3 vols.).	Do.	(1855-56)
	"First Footsteps in East Africa."	Do. (Longman, Brown, etc.).	(1856)
	"Lake Region of Central Africa." (2 vols.).	Do. do. ..	(1860)

Author's name.	Title of Book.	Place of Publication and Publisher.	Year.
	"The City of the Saints."	London (Longman, Brown, etc.).	(1861)
	"Abeokuta and the Cameroon Mountains."	Do. do. . .	(1863)
	"Wanderings in West Africa."	Do. do. . .	..
	"Mission to Gelele"	Do. do. . .	(1863)
	"Exploration of the Highlands of Brazil." (2 vols.).	Do. (Tinsley Bros.).	(1869)
	"Letters from the Battlefields of Paraguay."	Do. do. . .	(1870)
	"Ultima Thule, a Summer in Iceland." (2 vols.).	Do. (W. P. Nimmo).	(1875)
	"Two Trips to Gorilla-land."	Do. do. . .	(1876)
	"Gold Mines of Midian."	Do. (Kegan Paul).	(1878)
	"Land of Midian Revisited."	Do. do. . .	(1879)
7. Butler, Samuel	"A first year in Canterbury Settlement."	Do. (Fifield)	(1863)
	"Alps & Sanctuaries"	Do. do. . .	(1881)
8. Dilke, Sir Charles	"Greater Britain" ..	Do. Macmillan, (7th Edn.).	(1880)
9. Doughty, C. M.	"Travels in Arabia Deserta."	Do. (Medici Society reprint, 2 Vols.).	(1924)
10. Dufferin, Lord	"Letters from High Latitudes."	Do. (World's Classics Edn.)	(1856)
11. Gosse, Sir Edmund.	"Two Trips to Denmark."	Do. do. . .	..
12. Hearn, Lafcadio	"Glimpses of Unfamiliar Japan" (two series).	Do. (Travellers' Library, Cape).	(1894)
	"Out of the East" ..	Do. do. . .	..
13. Hudson, W. H.	"The Purple Land" ..	Do. (Modern Readers' Library Edn.).	(1885)
	"Nature in Downland."	Do. (Dent's "Open-air Library Edn.).	(1900)

Author's name.	Title of Book.	Place of Publication and Publisher.	Year.
14. Kipling, Rudyard	"From Sea to Sea" (two vols.).	London (Macmillan).	1900
	"Letters of Travel" (one vol.).	Do. do. .	(1900)
15. Kingsley, Mary H.	"West African Studies" (one vol.).	Do. do. .	(1900)
16. Palgrave, W. G.	"A Year's Journey through Central and Eastern Arabia" (two vols.).	Do. do. .	(1865)
	"Ulysses: Scenes and Studies" (one vol.).	Do. do. .	(1887)
17. Smith, Alexander	"Dreamthorp & Last Leaves" (one vol.).	Do. (World's Classics Edn.).	(1863, 1868)
18. Stephen, Sir Leslie.	"The Playground of Europe."	Do. .	(1871)
19. Stevenson, R. L.	"An Inland Voyage"	London, (Chatto & Windus).	(1878)
	"Travels with a Donkey in the Cevennes."	Do. do. .	(1879)
	"Across the Plains" ..	Do. do. .	..
	"The Silverado Squatters."	Do. do. .	(1883)
	"On the South Seas"	Do. do. .	..
	"Picturesque Notes" "Works," Tusitala Edition, Heinemann.	Do. do. .	..
20. Symonds, J. A.	"Sketches in Italy & Greece."	Do. Smith Elder & Co.	(1874)
21. Tyndall, I., Prof.	"The Glaciers of the Alps" (1860).	Do. (Published together Everyman's Library).	..
	"Mountaineering in 1861."		
	"Hours of Exercise in the Alps."		
22. Wallace, Alfred Russell.	"Travels on the Amazon."	Do. .	(1853)
	"The Malay Archipelago."	Do. .	(1869)
23. Whymper ..	"Scrambles amongst the Alps" (1860-69)	Do. .	..
The Cambridge History of English Literature (C. H. E. L.).		Reprint, Cambridge).	(1932)

SECTION II

HISTORY



THE ORIGINAL INHABITANTS OF THE UNITED PROVINCES: A STUDY IN ETHNOLOGY

BY

AMALANANDA GHOSH

D. Litt. Scholar in History, University of Allahabad

The United Provinces, the major portion of which was known as the Madhyadeśa or Mid-land in ancient times,¹ was regarded, as its very name indicates, as the centre of Aryandom. But it is impossible to think that before the region was occupied by the Aryans, it was uninhabited by any other people.

It had long been the custom of historians and anthropologists of India to denote all the non-Aryan peoples of India by the term 'Dravidian.' Indeed, this notion of the ethnic unity of the pre-Aryan peoples received encouragement especially when Oppert and Risley gave prominence to it, the one linguistically and the other anthropometrically.² The idea was hard to die out, and even at the present day we come across loose uses of the term 'Dravidian,' irrespective of any ethnic significance.

With the advance of the knowledge of Indian ethnology, it has been recognized that the pre-Aryan population of India was far from uniform. The linguistic speculations of Oppert were rejected as wild, and Risley's

¹ Manu (II. 21) defines Madhyadeśa as the region between the Himālaya and the Vindhya, east of the place where the sacred river Sarasvatī disappears and west of Prayāga. The Buddhists included under this geographical term a much greater area of land (See Journal of the Royal Asiatic Society, 1904, pp. 83 ff.).

² Oppert, *On the Original Inhabitants of India*, 1897; Risley, *The People of India*, 1914.

classification was subjected to a severe criticism and many of his conclusions were thrown overboard. The Linguistic Survey of India yielded much raw material which had to be digested; and a greater significance was added to the subject by the archæological discoveries at Mohenjo-daro and Harappa. Indeed, the problem of the original inhabitants of India has now become much more complicated than it was at the time when Risley worked and wrote; for no theory can now be regarded as satisfactory which does not fit in with the new philological and archæological realities.

A. EARLY RELICS

In the United Provinces no relic of the Stone Age has yet been unearthed.³ Indeed, traces of the civilization of Mohenjo-daro, the existence of which has been found as far east as Ambala,⁴ are entirely lacking in the United Provinces. But incomplete excavations at Buxar have brought to light some relics which may be proved to belong to a people akin to, if not identical with, the authors of the Mohenjo-daro civilization. If that be a fact, we might reasonably expect that the United Provinces region also was occupied by a similar people before the Aryans set their foot on the soil which later on became their all-important Madhyadeśa. Proof for this conjecture is wanting, but some relics of the Metal Age, probably posterior in date to Mohenjo-daro, have been found in the Ganges-Jumna Doab. The following is a summary of these relics and their date :

‘ Nor is any help in this matter of chronology obtainable from the groups of copper and

³ See the map in P. T. S. Ayyangar, *The Stone Age in India*, 1926.

⁴ *Antiquity*, 1931, p. 371.

bronze implements found at Gungeria in the C. P. and various sites in the Jumna-Ganges basin, notably at Rājpur (in the Bijnor District), Mainpuri, Niorai (in the Etāwah District), Fatehgarh and Bithūr (in the Cawnpore District). The objects referred to which evidently belong to one period, comprise short, flat celts of several types, long-bar celts, chisels, barbed harpoon-heads and swords, besides a number of silver plates (from Gungeria only), some of the last-mentioned being in the form of conventionalized bulls' heads, others of circular discs. Some of the short celts with splayed crescentic cutting-edge is not unlike certain specimens from Mohenjo-daro and Harappa, but the type is too common and widely diffused for any conclusion to be drawn from it. On the other hand, most of the other objects, *viz.*, the long-bar celts, swords, and barbed harpoon-heads are quite peculiar to the Jumna-Ganges basin and different from anything known to us either from the Indus Valley or anywhere else. Possibly these objects give us first glimpse of Indo-Aryan culture in the Upper Gangetic Valley, but it may be that they represent some culture yet unknown to us of Dravidian or Proto-Australoid origin and distant alike from both the Indus and later Indo-Aryan culture. Whatever their origin, the presence among them of swords with developed mid-ribs—weapons which are entirely absent at Mohenjo-daro and Harappa—leaves no doubt that they belong to a later age than those

represented on the latter sites, and, inasmuch as all the objects appertain to the Copper and Bronze Age, it seems fairly safe to infer that a considerable period of time must have elapsed between the disappearance of Mohenjo-daro and Harappa and the beginning of the Iron Age.⁵

B. ETHNIC ELEMENTS

To know the ethnic affinities of the people, we must begin with Sir Herbert Risley, who carried on the first systematic ethnological survey of India and came to the conclusion that there are seven physical types in India :⁶

I. Turko-Iranian Type, represented by the Baloch, Brahūi and Afghāns of Baluchistan and the North-West Frontier Province.

II. Indo-Aryan Type of the Punjab, Rajputana and Kashmir.

III. Aryo-Dravidian Type of the United Provinces, Rajputana, Bihar and Ceylon.

IV. Scytho-Dravidian Type of Western India, the Maratha Brāhmaṇas, the Kunbis and Coorgis.

V. Mongolo-Dravidian Type of Lower Bengal and Orissa.

VI. Mongoloid Type of the Himalayas, Nepal, Assam and Burma.

VII. Dravidian Type extending from Ceylon to the valley of the Ganges and pervading the whole of the Madras Presidency, Hyderabad, the Central Provinces, most of Central India and Chota Nagpur.

Risley's classification, as has been said above, has not received any wide acceptance, and must be greatly modi-

⁵ Marshall, Mohenjo-daro and the Indus Civilization, 1931, Vol. I, pp. 106-7.

⁶ Risley, loc. cit., pp. 32 ff.

fied before it can be applied to the question of the original inhabitants of India. Of these seven types, the first and sixth may be left out of account here, as they do not belong to India proper and have not influenced Indian culture to any appreciable extent.

The weakest point in the scheme of Risley was his seventh type, the Dravidian. The term was given a sweeping connotation and made to include all the non-Aryan population of Central and Southern India. Gustav Oppert, who supported the conclusion of Risley on linguistic grounds, divided the Dravidians into northern and southern, and classified them according to their names, one set calling themselves by names derived from *ko* and the other from *mala*, both meaning 'mountain.'⁷ The linguistic speculations of Oppert were an anachronism even at the time when his work was first published (1893). For long before that date, Max Müller had established the existence of the Kol (or Mundā) family of languages.⁸ Caldwell, writing in the seventies of the last century, recognized the difference between the Kol and Dravidian languages and wrote :

' In the list of the Dravidian languages, I have not included the Hō, the Mundā or any other of the rest of the languages of the Kōls, the Savaras and other rude tribes of Central India and of Bengal, called 'Kōlarian' by Sir George Campbell, and included by Mr. Hodgson under the general term Tamulian. These languages might naturally be supposed to be allied to Gōṇḍ or Ku, to Orāon or Rājmahāl and consequently to be of Dravidian origin; but though a few Dravidian words may

⁷ Oppert, loc. cit., p. 13.

⁸ Max Müller, Science of Language, Vol. II, 1899, p. 447.

perhaps be detected in some of them, their grammatical structure shows that they belong to a totally different family of languages. Without the evidence of similarity in grammatical structure, the discovery of a small number of similar words seems to prove only local proximity, or the existence of mutual intercourse at an earlier or later period, not to the original relationship either of race or of language.⁹

The linguistic survey of the Kol and Dravidian languages carried on by Sten Konow, the results of which were published in the fourth volume of the *Linguistic Survey of India*, definitely established the distinctness of the Kol (or Mundā) and the Dravidian family of languages. And the final conclusion was reached by Pater W. Schmidt who established the affinity of the Kol languages with the Khāsi, Mon and Khmer languages and further connected them with the languages of Madagascar, Indonesia, and the islands of the Pacific. According to him, all the languages of Madagascar, Indonesia, Melanesia and Polynesia (grouped together as Austronesian) and the languages known as Kol (Mundā), Mon, Khmer and Khāsi (grouped as Austroasiatic) are allied to each other and form one great linguistic family, the largest yet known, and may be called 'Austrie'. Pater Schmidt does not stop here but comes to the conclusion that in this case the unity of speech is coincident with unity of race.¹⁰

It has often been said that though differing in language, the Kol-speaking and Dravidian-speaking people

⁹ Caldwell, *Comparative Grammar of the Dravidian Languages*, 1913, p. 38.

¹⁰ Schmidt, *Die Mon-Khmer-Völker*, 1906; his conclusions are summarized in *J.R.A.S.*, 1907, pp. 187 ff; *Linguistic Survey of India*, Vol. I, pt. i, pp. 14-15; *Census Report of India*, 1911, Vol. I, pt. i, pp. 323-24.

are physically one. Owing to the close proximity since pre-historic times, it is possible that some tribes might have acquired some common physical traits. But close observers still assure us that even in places where they have lived together for centuries, *e.g.*, Chota Nagpur, the Mundās (who speak an 'Austrie' language) and the Orāons (who 'have preserved the rudiments of a language substantially Dravidian'¹¹) are distinguishable at a glance.¹² It is not entirely correct to say that 'in general uniformity of physical type throughout India seems to show that speakers both of Mundā and of the Dravidian languages must have settled there for countless ages, during which intermarriage and climatic influences and environment gradually destroyed the formal racial distinctions and evolved a uniform type.'¹³ It is to be noted, however, that the above writer who does not believe in any distinction of physical type at the present day, nevertheless admits that originally the two types were distinct. Language, of course, is an insufficient guide in tracing descent, for instances may be quoted by scores when the anatomical type and language do not correspond to each other.¹⁴ 'Still,' as Tylor says, 'under ordinary circumstances connection of speech does indicate more or less connection of ancestral race.'¹⁵ Though Pater Schmidt believed that the great Austrie family spread from the east, there is now a tendency of thinking that they migrated from the west.¹⁶

¹¹ Caldwell, *loc. cit.*, p. 36.

¹² S. C. Roy, *The Oraons of Chota Nagpur*, 1915, p. 83.

¹³ Gait, *Census Report of India*, 1911, Vol. I, pt. i, p. 325.

¹⁴ For examples, see Boas, *The Mind of Primitive Man*, 1927, pp. 131 ff.

¹⁵ Tylor, *Primitive Culture*, 1903, Vol. I, p. 49.

¹⁶ Hutton, *Census Report of India*, 1931, Vol. I, pt. i, p. 445.

The Austric-speaking people had no doubt held the Central Plains for some time, when the Dravidian-speaking people began to pour in. The original home of the Dravidians seems to have been in the west, they in all probability possessing the features of a Mediterranean race. The Brahūis of Baluchistan may be their rear-guard and Mohenjo-daro may mark one of their earliest settlements in India. There can be no doubt that they were the most important of the pre-Aryan races of India who greatly influenced the cultures of the other aboriginals, in language, religion and customs.

Since Risley wrote, it has been recognized that there is another element in the so-called Dravidian population of India. Keane and Haddon call it Pre-Dravidian, a dolichocephalic, short-statured and broad-nosed people.¹⁷ 'The platyrrhiny of this stock is so marked that where this character is exhibited in other peoples, we may suspect that they have a more or less Pre-Dravidian origin.'¹⁸ There might have been other uncivilized (probably autochthonous) peoples of India, with Negrito affinities, who have left little trace in India.¹⁹

We therefore find that the so-called Dravidian type of Risley has to be broken up into three (or more) distinct elements, the Dravidian, the Kol and others which may be collectively called Pre-Dravidian. According to this classification the term Aryo-Dravidian, the third type of Risley, has to be modified. That there is a difference between the people of the Punjab and the United Provinces may be taken as a fact, as it is borne out by every-day observation.²⁰

¹⁷ Haddon, *Races of Man*, 1924, p. 20; *Wandering of Peoples*, 1919, p. 26; Keane, *Man Past and Present*, 1920, pp. 422 ff.

¹⁸ Haddon, *Races of Man*, p. 107.

¹⁹ Hutton, *loc. cit.*, p. 442.

²⁰ We have G. S. Ghurye speaking against it, *Caste and Race in India*, 1932, p. 107.

And the non-Aryan element to which this modification is due must be sought not only in the Dravidian, but also in the Kol and Pre-Dravidian populations of the Gangetic plains.

The other types of Risley need not detain us long, as they do not concern the ethnology of the United Provinces. To explain the brachycephaly of the Western Coast and Bengal, Risley imagined an immigration of broad-headed Scythians in the first case and a mixture of the Dravidians and the Mongolians in the latter. In both cases Risley was wrong; in the first place, it has been pointed out that 'none of the "Scythians" appeared to have belonged to the required type'²¹; and 'the foreign element is certainly Alpine, not Mongolian, and it may be due to a migration of which the history has not yet been written.'²² Secondly, the brachycephaly of Bengal is held to be due to an extension of this western type through the forest regions of Central India. R. P. Chanda who recognized this Alpine element thought that these brachycephals immigrated into India at a late period of history.²³ But this does not seem to be a fact. The assimilation of this element has been so thorough that it must be regarded as very ancient. According to Giuffrida-Ruggeri 'the introduction of the brachycephals must go back to a pre-historic epoch.'²⁴

The Indo-Aryans who are sometimes regarded as Proto-Nordics and who, according to Risley, form the bulk of the Punjab population, are believed by him to be a pure race. Regarding the type, he says: 'Its physical

²¹ Haddon, *Races of Man*, p. 111.

²² Haddon, *Wanderings of People*, p. 27.

²³ Chanda, *Indo-Aryan Races*, 1914, p. 75.

²⁴ Giuffrida-Ruggeri, *The First Outlines of a Systematic Anthropology of Asia*, translated from Italian in *Journal of the Department of Letters, Calcutta University*, Vol. V, 1921, p. 212.

characteristics are remarkably uniform; and the geographical conditions of its habitat tend to exclude the possibility of intermixture with the black races of the South.'²⁵ . . . 'The ancestors of the Indo-Aryans came into India from the North-West and at the time of their arrival the peninsula, as far as the Gangetic Valley, was in the possession of the Dravidians. . . It seems probable therefore that when the Indo-Aryans entered the Punjab they brought their own women with them and were not reduced to the necessity of capturing Dravidian brides. On no other supposition can we explain the comparative purity of the race.'²⁶

This statement overlooks the possibility of a dolichocephalic and leptorrhine people crossing with another people with the same anatomical characteristics, in which case no change in the cephalic and nasal indices will take place. The Punjab, of all parts of India, has been most subject to foreign inroads. So Risley's statement about the geographical conditions of the Punjab having helped her to maintain her ethnical homogeneity is not correct. Whatever be the fact, there is no doubt that the Aryan-speaking people in course of time moved to the central plains, superimposing their culture on the native population.

We thus find that the population of the plains of the United Provinces consists of the following elements :

- (1) The Aryan-speakers (? Proto-Nordics)
- (2) The Austric-speakers (? Mediterranean)
- (3) The Dravidian-speakers (? Mediterranean)
- (4) The Pre-Dravidians (? Negrito, ? Proto-Australoid).

²⁵ Risley, loc. cit., p. 49.

²⁶ Ibid., p. 50.

C. THE PEOPLE

We now turn to a detailed consideration of these peoples. The Austric-speakers (or Kols) of India are now scattered the whole of India except the Far South, and have big areas of settlement in Chota Nagpur, Central India, Orissa, etc.; traces of Kol speech are found in the Chamba State, Simla Hills, Almora, Nimar, Betul, Amraoti, Chindwara (Central Provinces), very large tracts in Bihar and Orissa, Birbhum, Burdwan, Bankura, Midnapur (Bengal) and Ganjam. The Kol affinities of the languages of the Khasi and Jaintia Hills in Assam are beyond dispute.²⁷ Thus the conclusion is forced upon us that the Kols were at one time spread over the whole of Northern India along with, and probably before, the Dravidians and were, like them, forced to yield their holdings to the conquering Aryans. The *Aitareya Brāhmaṇa* (VII. 18) mentions the tribes Śabara and Pulinda as degraded descendants of the sage Viśvāmitra. The Savaras are still a tribe of north-east Madras, speaking the Kol language. The *Kathāsaritsāgara* indiscriminately uses the words Śabara, Pulinda and Bhilla as interchangeable terms.²⁸ We might therefore conclude that the present Bhils of Rajputana, who are certainly the descendants of the Bhillas of the *Kathāsaritsāgara*, were originally a Kol tribe, and have now taken to an Aryan dialect and have been engulfed into the Hindu fold to some degree.

The word 'Kol' to denote these people and their language has not obtained general acceptance. Sir George Campbell invented the word 'Kolarian'²⁹: a faultier word

²⁷ See the map facing p. 35, Linguistic Survey of India, Vol. I. pt. i, p. 35.

²⁸ *Kathāsaritsāgara*, N. S. Press, LXXI, 303 etc.

²⁹ Campbell, *Ethnology of India*, Journal of the Asiatic Society of Bengal, Vol. XXXV, pt. ii, Supplementary Number, p. 28.

could not have been found. For the supposed relationship of the Kols with Kolar in the South has proved to be entirely fictitious; and no less fictitious is the connection with the Aryans which the word 'Kolarian' hints at. Max Müller named the linguistic group *Mundā* and has been followed by the Linguistic Survey of India.³⁰ But Kol seems to be a better and a more popular word, for by that name the people are designated by their Aryan-speaking neighbours. The word is derived from the word for 'man' which is found in such forms as *hòṛ*, *hoṛò*, *hō*, *koro*, etc., in the Kol languages.³¹ Oppert's derivation from *ko*, 'mountain',³² must be taken with great reservation.

Regarding the Pre-Dravidians we have already seen that their extra-Indian affinity is doubtful. To them most probably we owe the platyrrhiny of the lowest castes and tribes of the United Provinces. No doubt they were reduced to a very unimportant position by the Kols and Dravidians, and it is possible that they completely gave up their language for that of the invaders.

The Dravidian-speaking people were the most important of the pre-Aryan races of India. 'Apart from the dark colour of skin, there are many points of resemblance between the Dravidians and Mediterranean peoples, which point to an ancient connection between the two, perhaps due to a common origin.'³³ Sir George Grierson is inclined

³⁰ Max Müller, loc. cit.; Linguistic Survey of India, Vol. I, pt. i, pp. 14, 35.

³¹ S. K. Chatterji, Study of Kol, Calcutta Review, Third Series, Vol. VIII, 1923, p. 452.

³² Oppert, loc. cit., p. 133.

³³ Haddon, Races of Man, p. 109; James Hornell believes that the Dravidians belonged to the Mediterranean race, a large portion of which was subsequently forced by circumstances to pass eastwards. On their arrival in India from Baluchistan they spread along the valleys of the Indus and the Ganges, introducing the boat-form of the Nile and the Tigris as they went. Origin and Ethnological Significance of Indian Boat Designs, Memoirs of the Asiatic Society of Bengal, 1920, pp. 224-25.

towards an Australian origin of the Dravidians.³⁴ But the situation of the Brahūis makes a strong case for a western origin. It is true that the Brahūis do not show any marked physical similarity with the present Dravidians. It would have been a wonder if they did so after centuries of intermixture with foreigners.

The Dravidians seem to have been a matriarchal people, and a distinct feature among them was cousin-marriage.³⁵ As, however, marriage with the daughter of the maternal uncle alone is permitted by them, and the daughter of the paternal uncle is forbidden, we may conclude that they were a *patrilocal* and not a *matrilocal* people. For it has been found that in the formation of the rules of exogamy, care has always been taken to prevent marriage between relatives living together from childhood.³⁶ Totemism, with exogamous groups, ruled their society, and the classificatory system of relationship, almost invariably associated with exogamy, was also prevalent among them.³⁷

Of all the non-Aryan peoples of India, the Dravidians were destined to play the most important part. In language, religion, manners and customs,—in short, all that constitute culture, the Dravidians have left ineffaceable traces, which now form integral parts of the Indian culture. Some of these will be dealt with later on.

Of the Aryans, their sacred books and culture, much has been written, and it may only be pointed out here that by the time of the *Śatapatha Brāhmaṇa*,³⁸ the Aryan occupation of the central Gangetic plains was complete. Already at the time of the later Upaniṣads, the Himālaya and

³⁴ Grierson, *Linguistic Survey of India*, Vol. I, pt. i, p. 82.

³⁵ Rivers, *Cousin Marriage in India*, J.R.A.S., 1907, pp. 618 ff.

³⁶ Westermarck, *A Short History of Marriage*, pp. 95 ff.

³⁷ Frazer, *Totemism and Exogamy*, 1910, Vol. II, pp. 330 ff.

³⁸ *Śatapatha Brāhmaṇa*, I.4.1.14 ff.

the Vindhya were regarded as the boundaries of Aryan-dom,³⁹ which clearly indicates that the region now known as the United Provinces formed part of the Aryan land. Their relations with the non-Aryans are anything but clear to us. The less civilized of the non-Aryans might have taken shelter in the hills; others seem to have fled to different parts of India, particularly to the South; while some must have stuck to their original holdings, subsequently to form the lower strata of the population.

Mention may here be made of a theory first propounded by Hörnle and later on reinforced in some important details by Grierson.⁴⁰ According to Hörnle the Aryans entered India in two groups, some time elapsing between the two immigrations or invasions. The second group entered the Punjab like a wedge and drove the first-comers in three directions, east, south and west. Grierson, while not denying this, is not prepared to accept this theory in all its details. 'It is equally possible,' he says, 'that the latest comers may have found their way opposed and have gone round their predecessors, down the Indus valley, and thence, in later times, across India, to their south and ultimately behind them, to the east. In either case the political result would be very similar. There would be a central people surrounded on the west, south and east by another.' Such a theory is required, according to him, by the linguistic conditions. The Aryan languages of India fall into two groups, which may be called the 'Inner' and the 'Outer'; the boundaries of the 'Inner' languages exactly correspond to the boundaries of the Madhyadeśa; while the 'Outer' group consists of the languages of the Western Punjab, Sind, the Marāthā country, Central India, Bihar, Orissa and Bengal. Gujrat, which, accord-

³⁹ Kauṣītaki Upaniṣad, ii, 13.

⁴⁰ Grierson, loc. cit., pp. 116 ff.

ing to tradition, was colonized from Mathurā, speaks a language of the 'Inner' group.

The reasons adduced by Grierson are not very cogent, and the characteristics mentioned by him are not shared by all the languages of the 'Outer' group. The hardening of the sibilant, for example, is not universal in Marāṭhī, but is the most distinguishing feature of the Māgadhī Prakrit (whose direct descendants are Bengali, Bihārī and Oṛiyā). Again, Grierson wants us to believe that the declension of nouns in the 'Inner' languages is analytic, but is synthetic in the 'Outer' ones. But it is impossible to believe that the 'Outer' languages are synthetic to any special degree. It is out of place here to discuss whether the dative forms of Bengali and Hindī are derived from *kṛta* or *kakṣa*⁴¹; it is certain that they have the same origin in both the languages. The only trace of synthetic declension is the genitive suffix *er* in Bengali; in this case, it does not represent 'a stage further in linguistic evolution from the analytic to the synthetic form.' It is only a survival of the synthetic genitive suffix of the old Indo-Aryan. Nor does any old grammarian recognize such a division as 'Inner' and 'Outer.' Pāṇini knows of two schools of grammarians: the Western and the Eastern. And Professor Sunitikumar Chatterji, after a thorough examination of the whole question, comes to the conclusion that the natural division would appear to be the Western and Eastern, the '*Udīcyā*' and the

⁴¹ Hörnle, *Comparative Grammar of the Gaudian Languages*, 1880, pp. 224 ff; Beams, *Comparative Grammar of the Modern Aryan Languages of India*, Vol. II, 1875, pp. 253 ff; Grierson, loc. cit., p. 131; Bhandarkar, *Wilson Philological Lectures*, ed. 1914, pp. 244 ff; S. K. Chatterji, *Origin and Development of the Bengali Language*, 1926, Vol. II, pp. 760-61. A Dravidian origin has been argued by Cadwell, loc. cit., p. 280 and B. C. Majumdar, *History of the Bengali Language*, 1920, pp. 59-60.

'*Madhyadeśīya*' on the one hand and the '*Prācyā*' on the other.⁴²

This digression was necessary to show that there is no ground for believing that the Aryan population of the Madhyadeśa was linguistically different from that of the North-Western. The Aryans might have entered India not in two but in many successive immigrations. But that does not go to prove the existence of a central people surrounded by, and linguistically different from, another people, who entered India at an earlier or later date.

D. CASTE AND RACE

Much ink has been spilt on discussions on the origin of the caste system and no definite conclusion has yet been reached. To Nesfield, one of the early workers in the field of ethnology in the Central Plains, caste was entirely a matter of occupation, the relative precedence of the various castes being determined by the primitiveness or otherwise of the occupation prescribed for them. He had no faith in the 'modern doctrine' which divided the population of India into Aryan and aboriginal, and denied that the Brāhmanas were distinct in race and blood from the scavengers.⁴³ Though Crooke criticizes Nesfield by saying that 'the evidence of anthropometry shows that there is proof for the stratification of the existing races,' he approvingly quotes the remarks of O'Donnel that 'the Indian races and tribes in the valley of the Ganges from the Afghan frontier to the Bay of Bengal are so absolutely intermingled in blood that it is impossible to discriminate between the skull characteristics of the castes or functional guilds which have grown up under later Brāhmanical

⁴² Chatterji, loc. cit., Vol. I, pp. 150 ff.

⁴³ Nesfield, Brief View of Caste System in N.-W. Province and Oudh.

usage.⁴⁴ In short, Crooke too leans towards an occupational origin of caste.

But common occupation does not explain all the features of the caste system. There are many castes all over Northern India which are undoubtedly of a tribal origin, and some of which are actually caught, as it were, in the act of transformation from a tribe to a caste, the distinguishing features of a tribe being (1) living in a well-defined region, (2) no identity of occupation, (3) no universal belief in a *gotra* or eponymous ancestry, which, however, sometimes takes the form of a totem, an idea entirely foreign to caste.⁴⁵ The notion of caste being purely occupational in origin has led Nesfield, and less frequently Crooke, to invent absurd etymologies for some purely tribal names, such as the derivation of Aheriya from Sanskrit *ākhetika*, Banjara from *vāṇijya*, Barai from *vrtti*, etc., in all contravention to linguistic and phonetic laws.

Risley's theory of caste is that it was neither an Aryan nor an aboriginal institution, but came into being only when the two peoples met each other, and as the meeting took place in the central Gangetic plain, caste originated in the Madhyadeśa. According to him, invaders are ready to take girls from aborigines, but not to give their daughters to them. In this way, it is not difficult to construct the rough outlines of the process which must have taken place when the second wave of Indo-Aryans first made their way into India with few women. They subordinated the inferior race of the Dravidians and captured women according to their needs. Then they found themselves cut off from their original stock, partly by the distance and partly by the alliances they had contracted. By marrying

⁴⁴ Crooke, *Tribes and Castes of the North-West Provinces*, 1896, Vol. I, p. cxxxvii.

⁴⁵ Crooke, *Natives of Northern India*, 1907, pp. 85-86.

the captured women, they had to some extent modified their original type; but a certain pride of blood remained in them, and when they had bred females enough to serve their purposes and to establish a distinct *jus connubii*, they closed their ranks to all further intermixture of blood. When they did this, they became a caste like the castes of the present day.⁴⁶

This theory of caste is obviously connected with Risley's other important theory that the higher the amount of Aryan blood in a caste, the higher is its acknowledged position in society. Apart from the obvious limitations of the theory, it fails to explain on what principle the division of the society took place in regions where there was no Aryan and Dravidian question, *e.g.*, Bengal and the South, where, according to Risley himself, the Aryan element is non-existent in the population.⁴⁷

The latest theory was started by Stanley Rice,⁴⁸ which has been developed in its essential points by Dr. Hutton.⁴⁹ According to this, 'the sentiments and beliefs on which caste is based presumably go back to the totemistic proto-australoid and austroasiatic inhabitants of Pre-Dravidian India and we may conceive of their becoming effective on contact with Dravidian-speaking strangers bringing new crafts from the west . . . Caste in its present form may be a post-Aryan development, but its essential ingredients which made the growth of caste possible were of pre-Aryan origin and without them the development of caste would not have and could not have taken place.'

⁴⁶ Risley, *loc. cit.*, pp. 273 ff.

⁴⁷ For other criticisms of Risley's theory, see Hutton, *loc. cit.*, p. 435.

⁴⁸ Rice, *Origin of Caste*, *Asiatic Review*, 1929, pp. 147—57, 331—37.

⁴⁹ Hutton, *loc. cit.*, pp. 433 ff.

This theory, which traces the genesis of caste to the primitive notions of magic and taboo, is brilliant and recognizes for the first time that we may have to turn to the science of social anthropology for the solution of the problem. The most interesting part of it is its proposed explanation of Manu's denouncement of *pratiloma* (or 'against-caste') marriages by showing the helpless position of a child born of a matriarchal (non-Aryan) father and a patriarchal (Aryan) mother, as neither of the societies would be ready to receive it. But some more ground must be cleared before the theory can be finally accepted. It must explain what was the basis of the strict gradation on which the crystallization of the society took place; in other words it must explain how the hierarchy of castes came to be established. We may also inquire why the distribution of certain occupations by villages, such as is found in the unadministered area to the east of the Naga Hills (a feature in which has been found the first beginnings of the caste-system) is not universally found among other primitive tribes of India, whose Proto-Australoid and Austroasiatic affinities are patent. The theory has further to account for the fact that the nasal index of the higher castes is smaller than that of the lower castes in the United Provinces. It has also to explain why, more than anywhere else in India, the functional type of castes predominates in the United Provinces.⁵⁰

These paragraphs, showing that no satisfactory theory explaining the origin of caste has yet been propounded, are rather out of place here, but they will be of some help to us in the question of the relation of caste and race. According to Risley, the social status of the respective castes corresponds to the gradually increasing nasal index: the broader the nose of a particular caste is, the lower is

⁵⁰ Gait, loc. cit., p. 374.

it placed in the rung of social hierarchy as established by the caste system. Speaking of the Aryo-Dravidian type in which is included the population of the United Provinces, he says :

‘ The order thus established (according to the ascending nasal indices) corresponds substantially with the scale of social precedence independently ascertained. At the top of the list are the Bhuinhārs, who rank highest among the territorial aristocracy of Hindustan and Bihar; then come the Brāhmans followed at a slight yet appreciable interval by the clerkly Kāyasths with an index of 74·8; while down at the bottom the lower strata of the Hindu society are represented by the Chamār, and the foul-feeding Musahar The seriations tell the same tale as the averages, and mark the essential distinction between the Aryo-Dravidian and Indo-Aryan types.’⁵¹

Carried on further, the theory would lead us to suppose that the greater the amount of (platyrrhine) non-Aryan mixture in a particular caste, the lower would be its position in society.

Risley has been often criticized for this theory. The unerring accuracy with which his nasal indices correspond to the status of the caste is the weakest part of the theory. It assumes that the mixture of caste ceased in very early times; and that since then the whole structure has been static. Unfortunately the actualities are very different. ‘ Instead of castes being a clearly-defined entity, an association complete in themselves, they are in a constant state of flux and flow. New endogamous groups are

⁵¹ Risley, loc. cit., p. 40.

constantly being created, the process of fission is ever in operation and what is more important still, the *novus homo*, like his brethren all the world over, is constantly endeavouring to force his way to a higher grade and acquire the privileges of the "twice-born."⁵² Ibbetson says that the process is going on daily around us, and it is certain that what is now taking place is only what has always taken place during the long ages of Indian history.⁵³ Change of occupation, difference in locality, change of religion, are some of the causes leading to fissions in castes.⁵⁴ Risley himself recognizes seven types of castes,⁵⁵ among which a very important type is the functional and occupational caste. To take the example of the Kāyasthas : they formed themselves into a caste (as solid as any other) only in early mediæval times, and were drawn from many sections of the population. To try to find out a correspondence between their ethnic origin and social status is, therefore, out of the question. But this is what Risley tries to do. Secular authorities in ancient times have not infrequently conferred Brāhmaṇahood on lower castes.⁵⁶ Moreover, the theory does not make any concession for the changes in the physical features of the Indians that might have been brought about by the people who came to India after the full development of the caste-system, but were nevertheless given a place in it. To make the confusion worse confounded, some scholars insist, and not without reason, that the so-called castes are merely

⁵² Crooke, *Tribes and Castes*, Vol. I, p. xix.

⁵³ Ibbetson, *Punjab Castes*, p. 8.

⁵⁴ Blunt, *Census Report of the United Provinces, 1911*, pp. 349-52.

⁵⁵ Risley, *loc. cit.*, pp. 75 ff.

⁵⁶ For some examples, see Beni Prasad, *The State in Ancient India*, 1928, pp. 509-10.

conglomerations of many castes, and that the real castes (so far as commensality and intermarriage are concerned) are to be sought in those groups which are now known as sub-castes.⁵⁷

In the face of this tumultuous condition of the society where fission and fusion have been in full operation, it is extremely improbable that there should be any *complete* correspondence between the social position of a caste and the aboriginal blood in it. Nevertheless, the fact is borne out by every-day observation that the lowest castes and tribes are characterized by a broad nose, which gradually disappears in the higher castes. A complete correspondence, if it exists at all, must be accidental; but if we examine a high caste and another caste considerably lower, the difference becomes evident. This difference no doubt is due to the greater strain of non-Aryan blood in the lower castes. Risley's theory, therefore, postulates the platyrrhiny of the people with whom the Aryans mixed in the United Provinces. But of the three pre-Aryan peoples enumerated above, the Pre-Dravidians (? Proto-Australoids) were the only people who may be definitely said to have been platyrrhine. About the Dravidian- and Kol-speaking peoples nothing definite can be said. An exaggerated importance has been attached to the word *anās* ('noseless'), an epithet of the Dasyus in the *Rgveda*.⁵⁸ While not denying the possibility of the flat nose of some of the non-Aryan peoples of India being described here, we must not put too much weight on it. It has always been the custom of the foreigners (especially if their relationship with the native population be hostile) to

⁵⁷ Senart, *Castes in India*, tr. Ross, 1930, p. 75; Ghurye, loc. cit., p. 19.

⁵⁸ *Rgveda*, V.29.10.

describe the features of the natives as ugly and to disfigure them beyond the limits of truth.⁵⁹

All that we can, therefore, be sure of is a Pre-Dravidian element in the lower castes and tribes. About the higher castes, it can only be said that there is less and less Pre-Dravidian strain. This does not preclude the possibility of mixture between the Aryans and others who might have been leptorrhines.

Another point that requires mention is that the eastern districts of the United Provinces observe a sort of hypergamy with the western ones. The lower sub-castes live in the east, the higher in the west; following the principle of hypergamy, girls of the east are married to boys of the west (cf. the Rājput proverb: *beṭī pūrab, laṛkā pachchhim*⁶⁰). The reason may probably be sought in the greater amount of non-Aryan blood in the eastern districts. Anthropometrical researches in this direction may yield interesting results. The same cause was responsible for the ancient Aryan hatred of Bihar and Bengal.⁶¹

E. LATER HISTORY

What became of the aboriginal tribes after the Aryan occupation of their lands is all uncertain. But traditions about their holding their lands in later times are so persistent that the matter cannot be let go without a mention. The Cheros (a member of the so-called Kolarian group according to the *Proposals of the Indian Constitutional Reforms*, 1933) are always associated with the

⁵⁹ Cf. Rāmāyaṇa, ed. Nirṇayasāgara Press, Sundarakāṇḍa, xxii. 33 ff.; which describes the demonesses as cow-footed, one-footed, noseless etc. Moreover, the Dasyu here, as in most other places in the R̥gveda, may not mean a human being at all, but an atmospheric demon.

⁶⁰ Blunt, loc. cit., p. 212; Hutton, loc. cit., p. 439.

⁶¹ Cf. Aitareya Āranyaka, ii.1.1; Baudhāyana-dharmasūtra, I.i.2.14.

Bhars, and may be identical with the Cerapādas of the Vedic period.⁶² Both of these tribes, along with certain others of a similar origin, claim to have been dominant in the Gangetic plains till they were driven out by the Rāj-pūts, in the 12th and 13th centuries A.D. So living is the memory of their domination that innumerable mounds and tanks throughout Oudh, the Eastern U. P. and Bihar are ascribed to them. Indeed, it is said that every town whose name does not end in *-pur*, *-ābād* or *-mau* belongs to them.⁶³ In the Etah district the dominant tribes are mentioned as Ahirs and Bhars; in Mainpuri they are the Bhars, Meos and Chirars; in Bareilly the Ahirs, Gobris, Goelis and Gujars; in Cawnpore the Meos; in Farukhabad the Bhyars (Bhars?); in Muttra the Kalārs; in Allahabad the Bhars; in Gorakhpur and Basti the Cheros.⁶⁴ All of them were overthrown by different clans of the Rāj-pūts at the beginning of the Muhammadan era.

In the face of this universal tradition it would be hasty to reject the hypothesis of an aboriginal occupation of the land in the early mediæval age. It is significant, moreover, that this Bhar domination of Northern India synchronized with the Kaivartta rebellion in Bengal during the reign of the Pālas. Are we, therefore, to imagine an organized rising of the non-Aryans, ready to snatch away their original holdings from the foreigners?

But the known political history of Northern India does not favour such a hypothesis. No inscription or coin of

⁶² Aitareya Aranyaka, ii.1.1.

⁶³ Crooke, Tribes and Castes, Vol. II, pp. 2-3.

⁶⁴ The list may be prolonged. See Atkinson, Statistical, Descriptive and Historical Account of the North-West Province, 1874—84, under the respective districts. For some districts of Bihar, see Buchanon-Martin, History, Antiquities, Topography and Statistics of Eastern India, 1838, Vol. I, p. 405 etc., Vol. II, p. 341 et *passim*. For further details, see Elliot, Chronicles of Oonao, 1862, pp. 25 ff; Sherting, Hindu Tribes and Castes, 1872, pp. 359 ff; Archæological Survey of India, Vol. XXII, p. 107, etc.

these aboriginals is known; nor is there any big gap in the list of royal dynasties where we may fit in these intruders. The solution would probably be these lines: the Bhars and others seem to have formed the land-owning classes under the ruling princes, with only such political powers as are possessed by the feudal lords when the central authority is weak. Their régime may, in fact, mark the beginning of the *zamindārī* system of Northern India, a system which was not prevalent in ancient India and which became more developed under Muslim rule. They lost their holdings and settled down as mere cultivators when there was a scramble for land after the Muslim conquest, which scattered the Rājput̃s all over the United Provinces and Bihar. The Rājput̃s snatched away all the land from the Bhars and others, and established themselves as the landed aristocracy, a position which they still retain in the United Provinces, especially in Oudh.

F. PRIMITIVE CUSTOMS

We can have glimpses of the customs of the original inhabitants by examining the survivals of the primitive culture that are found among the low-caste people. Some of these tribes, probably the Dravidians, if not also the Kols and Pre-Dravidians, were no doubt matrilineal, as is to be seen from the custom of the maternal uncle taking a prominent part in the marriage of boys, as well as the sister's son having important rites to perform at death, etc. Briggs thus summarizes some features in the marriage ceremony of a Chamār:

‘Traces of matriarchate are seen in the following facts: the marriage is arranged by the mother's brother, or the mother's sister's husband, or these relatives play an important part in the negotiations; the father's sister's husband has

duties at the wedding; there are other similar relationships involved. Again, the uncle's (mother's brother's) consent to the marriage is necessary, and he sometimes receives all or part of the brideprice. In other places his privileges are confined to the making of certain gifts, such as earrings, the wedding clothes for all the family and a certain number of rupees towards the wedding expenses, and the furnishing of a dinner for the *barat* (party accompanying the procession). These privileges are not always obligatory. There are other duties in connection with the funeral rites and the practices connected with birth and early years of childhood which point to the same direction."⁶⁵

There is no indication of pure matriarchal descent in the United Provinces; Aryan patriarchy no doubt imposed itself on matriarchy, which gradually dwindled away. Similarly, there is no trace of the *couvade*, which represents a pious fiction of the father taking over the rights of the mother.⁶⁶ As we shall see below, some castes allow cousin-marriage; this also may point to the previous existence of matriliney. For Rivers thinks that cross-cousin marriage may be a secondary consequence of the transition from mother-right to father-right.⁶⁷ Lowie thinks privileged relation or licensed familiarity generally exists between potential mates.⁶⁸ We may note here that the relation

⁶⁵ Briggs, *The Chamārs*, 1920, p. 41; cf. Blunt, loc. cit., p. 219; Crooke's article on the Dravidians (North India) in *Hastings' Encyclopædia of Religion and Ethics*; *Indian Antiquary*, 1899, p. 162.

⁶⁶ Frazer, loc. cit., Vol. I, pp. 72-73.

⁶⁷ Rivers, *Social Organization*, 1926, p. 76.

⁶⁸ Lowie, *Primitive Society*, 1921, p. 97.

between the nephew and the maternal uncle's wife is somewhat 'privileged' in the United Provinces.

Further, there is no trace of polyandry, fraternal or otherwise, except in the hills, where it is of Tibetan origin. But levirate, which, according to some, is a modified form of fraternal polyandry, is very widely prevalent among practically all the classes which allow widow-remarriage. Beena marriage, which requires the bridegroom to put in some years of service in the household of the bride is found among the Cheros, Bhuiyārs, Gonds, etc.⁶⁹ Among many tribes, there is the custom of the bridegroom's party entering into a sham fight with the bride's, which wails and abuses at the bridegroom carrying away the bride. This may represent genuine marriage by capture, but Professor Westermarck is doubtful whether marriage by capture was ever the usual or normal mode of contracting marriage, and thinks that the sham fight might only be a playful imitation of an act of bravery.⁷⁰

Sir James Frazer lays down that totemism is prevalent among all peoples except the Aryans and Semitics.⁷¹ We would therefore expect to find traces of it in the aboriginal population of Northern India. Among the Agarias, Baiswars, Bhangis, Ghasias, Kharwars and Nats, the names of certain septs are derived from animal names, giving rise to the conjecture that they are in reality totem names. The indications are no doubt vague, and our knowledge may thus be summarized: 'In any case the connexion of totemism with the current beliefs of the Dravidians is obscure; and totemism, as we find at the present, generally appears as a mode of defining the exogamous groups, many of which trace their descent from some

⁶⁹ Blunt, loc. cit., p. 220.

⁷⁰ Westermarck, loc. cit., pp. 113 ff.; Lowie, loc. cit., p. 22.

⁷¹ Frazer, loc. cit., Vol. IV, p. 12; for description of totemism in India, Vol. II, pp. 218 ff.

animal, plant or other thing which the members of the group regard as sacred and will not injure or eat.’⁷² Some tribes such as the Agaria, Chero, etc., allow cousin-marriage, but marriage with the cousin is not compulsory as in the South. The classificatory system of relationship, another Dravidian feature, does not seem to be existent in the north, unless we take such terms as *chachērā bhāī* (‘cousin-brother’) as proof of the existence of the system in old times.⁷³ Frazer believes that exogamy was a Dravidian custom borrowed by the Indo-Aryans, as no other Aryan people possessed it.⁷⁴

The primitive people of India were no doubt good magicians. It would be too long a list to repeat even some of these magics performed by the people a ‘homœopathic’ magic, for instance, to make the rains fall, or a ‘contagious’ magic to transfer the disease of some relative to another unconnected person. Slater thinks that the theory of sympathetic and contagious magic was first worked out in Egypt, whence it spread by slow diffusion all over the world, and that Indian magic of the present day must be regarded as a Dravidian rather than an Aryan contribution to Indian culture.⁷⁵ The question of origin apart, it may be said that the prevalence of magic in India need not altogether be ascribed to Dravidian influence, as the Vedic rituals are thoroughly permeated by ideas of magic.

⁷² Crooke’s article on the Dravidians (North India) referred to above.

⁷³ Frazer, loc. cit., Vol. IV, pp. 13-14. Are not the Bengali terms of relationship, such as *kākī-mā*, *pishīmā* etc. (all meaning ‘aunt-mother’) reminiscent of the classificatory system?

⁷⁴ Frazer, loc. cit., Vol. II, p. 330. Contrast Senart, loc. cit., p. 176. Hearn says: ‘Several traces of the law of exogamy may be observed, although I must acknowledge that they are not very distinct’ (Aryan Household, 1879, pp. 158-59).

⁷⁵ Slater, Dravidian Element in Indian Culture, 1924, p. 117.

The religion of the people must have consisted of beliefs in spirits and demons and other things associated with animism.⁷⁶ The belief in *bhūt*, *pret*, *dāno*, *deo*, etc., all able to do mischief when angry, still forms part of the creed of the villagers, side by side with a belief in the existence of one God and many deities (Aryan or otherwise). We also find that every village has its own deity which is often nameless, and the temple is open to the sky. In some cases the fetish is nothing more than a block of stone, some 'palæolithic or neolithic stone implements, held to be mysterious by people living in the age of metals, often supposed to be thunderbolts containing the seed of fire and thus connected with the sky-god.'⁷⁷ Some godlings and demons of Hindu mythology are surely of non-Aryan origin. For example, Rāhu, a demon, who swallows the sun and the moon in the eclipse, is a tribal god of the scavengers all over Northern India and it is the special privilege of the scavengers to get alms during eclipses.⁷⁸ We might also conjecture that the cults of the mother-goddess and the phallus which formed important parts of the worship of the Mohenjo-daro people were prevalent among other non-Aryans as well, especially those connected with the authors of the Mohenjo-daro civilization.

Zoolatry, as distinct from totemism, must have had a share in the faith of the people. Is Hanūmān non-Aryan in origin?

G. SURVIVALS

Linguists have laid down that 'when a language finds it necessary to introduce technical, scientific, religious or political terms, it is fair to suppose that the language

⁷⁶ For details, see Crooke's article referred to above.

⁷⁷ Crooke, *Religion and Folklore in Northern India*, 1926, p. 89.

⁷⁸ *Ibid.*, p. 40.

which lends the words must be that of a nation in a higher state of culture than the language of a nation which borrows them.⁷⁹ This dictum, framed in modern parlance, speaks in terms of 'nation,' but holds good in the case of ancient races as well. The Dravidian languages have borrowed Aryan words to denote philosophical ideas and expressions, so that we may be justified in holding that the Aryan language was richer in such terms than the Dravidian. If on the other hand we look at the Dravidian words current in North Indian vernaculars, we find that nearly all of them are such as are current in every-day life and have no abstract or philosophical conception.

Many words in modern vernaculars, the Prakrits and even Sanskrit have been traced to Dravidian sources.⁸⁰ But vocabulary has not the final say in comparative philology, which goes to more permanent and fundamental elements of the language, *viz.*, morphology, phonetics and syntax. The Dravidian substratum in Sanskrit, the Prakrits and the modern vernaculars has often been examined,⁸¹ but we must confine ourselves only to those points which relate to the language of the United Provinces in particular.

In *morphology*, the following facts may be noted :

(1) Caldwell believed that the Hindī dative form *ko* was derived from Dravidian *ku*. There is no *a priori* absurdity in such an assumption, but it is inadequate as it cannot explain such Old Hindī forms as *kahā* (Tulsīdās),

⁷⁹ Strong, Logemann and Wheeler, Introduction to the Study of Language, 1891, p. 384.

⁸⁰ For a complete list, see Kittel, Kannada-English Dictionary, 1894, pp. xvii ff.; Indian Antiquary, 1872, pp. 235 ff.; Row, 1916, p. 16; 1917, pp. 33 ff.; Majumdar, loc. cit., pp. 71 ff.

⁸¹ See, for example, Caldwell, loc. cit., p. 55; Sten Konow, Indian Antiquary, 1903, pp. 455. ff.; Grierson, Linguistic Survey of India, Vol. I, pt. i, p. 131; Vol. IV, pp. 278 ff.; Majumdar, loc. cit., pp. 56 ff.; Chatterji, loc. cit., Vol. I, pp. 170 ff.; Bloch, Bulletin of the London School of Oriental Studies, Vol. V, pt. iv, pp. 730 ff.

kon and *kaun* (Sūrdās), and *kaun*, *kahun*, and *kahūn* (Chand Bardāi).⁸² As we have seen before, we should find in the vernacular dative suffixes greatly decayed forms of the Sanskrit word *kṛta* or *kakṣa*, used as a post-position. But though the form may not have been directly borrowed from Dravidian, we may reasonably hold that two or more ways of expressing the dative converged upon the present form, as it was most akin to the Dravidian suffix.

(2) This form of inflecting the noun by adding post-positional particles to the oblique form of the noun is in itself a Dravidian tendency and is found in the use of the Hindī suffixes *me* > *madhye*, *pās* > *pārśve*, etc.

(3) The agglutinative nature of the Dravidian (and Kol) languages reveals itself in the optional way of the formation of Hindī plurals, *viz.*, by the addition of such words as *log*.

(4) The formation of the verbal tenses by means of participles (e.g., *gayā* > *gataḥ*) may be traced to the greater and greater use of such forms in Sanskrit, though they were unknown in Vedic. But the growing popularity of the *ta* and *tavat* formation in Sanskrit may itself be a Dravidianism.⁸³

(5) The use of compound verbs, such as *baiṭh jāo*, *uṭh parō*, etc., of very common occurrence, is a peculiar Dravidian idiom.

(7) The absence of affixes to denote the comparative and superlative degrees of adjectives is a further point of agreement with Dravidian.

In *phonetics*, the main point of discussion has so long been whether or not the cerebrals of the Indian languages (both old and new) are borrowed from Dravidian. It has been pointed out that cerebrals have arisen independently

⁸² Beams, loc. cit., Vol. II, pp. 253 ff.

⁸³ Bloch denies this, loc. cit., p. 733.

in Indo-European languages, *e.g.*, Swedish and East Norwegian, and that therefore it is a perfectly natural development.⁸⁴ But the conditions of India are rather different. Here the use of the cerebrals is most marked in places where Dravidian influence was strongest, and least so where it is almost non-existent (*e.g.*, in Assam and East Bengal, where the people pronounce ॠ and ॡ as *r* and *rh*). In these circumstances, while we cannot deny the potentiality of the Indo-European languages to develop the cerebrals, it may be safely held that in India the spread of these sounds was accelerated and popularized under the influence and on the analogy of the Dravidian languages.

The phonetic decay observable in the Prakrits and the modern vernaculars, but most of all in the transitional stage (the *Apabhraṃśa* period), may be due to Dravidian influence. The paucity of diphthongs and anaptyxis (*scarabhakti* of the Prakrit grammarians) are all stages in this process. The insertion of *y* to prevent the hiatus in such popular words as *siyā* > *siā* > *sitā* is a Dravidian characteristic. Pāṇini's permission to use *y* optionally in such cases as *devā iha* (VIII. 3. 17) may itself be a concession to Dravidianism. 'The whole Vedic system,' says Professor Sunitikumar Chatterji, 'has been simplified to that of the modern vernaculars, and this simplification has been carried out to a great extent along the lines of Dravidian.'⁸⁵

Syntactically, there is not much difference between Indo-European and Dravidian. Some cases of probable influence may be noted, *e.g.*, the post-positional use of the governing word, the use of the verb at the end of the sentence, the placing of the relative clause before the principal clause, etc. Another interesting case is the repeti-

⁸⁴ Jespersen, *Language*, 1923, pp. 196-97.

⁸⁵ Chatterji, *loc. cit.*, Vol. I, pp. 38-39.

tion of a word as a distributive adjective, *e.g.*, Hindī *apnā apnā kām karo*, which is a Dravidian characteristic. Other instances of Dravidian construction of sentences are the use of the present imperfect of the verb 'to say' (*bol-ke* in Eastern Hindī) to mean 'because,' and the optional placing of the negative particle *nahī* after the verb.

We can see from the above examples that Dravidian influences are greatest in number in the vernaculars, less so in the Prakrits and least so in Sanskrit. This clearly shows that the Dravidian influences reached their culmination in the 10th, 11th and 12th centuries A.D., the formative period of the vernaculars, the 'area of characterization' of which was Northern India. How are we to reconcile this with the known facts of history? Is it not that the amalgamation of the Aryan- and Dravidian-speaking populations of India took place at a much earlier period? This leads us to expect that some Dravidianisms would enter the Aryan languages at that early period, once for all, and then cease to increase in number. But facts do not coincide with this supposition. It seems far from unlikely, therefore, that these Dravidian traits were introduced into the popular dialects by those landholding aborigines who, as we have seen before, held sway over the whole of Northern India from the western districts of the United Provinces up to Bengal in the 10th to 12th centuries, just when the vernaculars had begun to take shape. This may explain why Dravidianism is most marked in the New Indo-Aryan stage.

The question of Kol influence has come only recently to the forefront and has attracted the attention of such scholars as Professors Przyluski and Sylvain Lévi.⁸⁶

⁸⁶ Journal Asiatique, Tome CCIII, pp. 1 ff., Tome CCVIII, pp. 1 ff.; J.R.A.S., 1931, pp. 613 ff. For a summary of their work, see Woolner, *Prakritic and Non-Aryan Strata in the Vocabulary of Sanskrit*, Sir Asutosh Memorial Volume, 1926-28, pt. i, pp. 66 ff.

They have carried on the analysis of certain suspicious-looking Sanskrit words according to Austric laws of word-formation, and among the words that have been exposed as belonging to the Austric languages are such geographical terms as Kosala-Tosala, Aṅga-Vaṅga-Kaliṅga, Puṇḍa-Puṇḍra, Pulinda-Kulinda, etc. It has been pointed out that Gaṅgā may also be an Austric word. The harmonic sequence of vowels in Bengali and the complicated verbal conjugation of Magahī and Maithilī are Kol characteristics. But confining ourselves to the United Provinces, we may safely say that the Kol influences are neither profound nor extensive. We may only note in passing that the village folk of Northern India, like the Kols, use a vigesimal system of numeration, *i.e.*, count by twenties instead of by tens.

It is difficult to accept Przyluski's view that the Austric-speakers of Northern India drove the Dravidians, the first occupiers of the soil, to the south. Except some words in the vocabulary (and those too might have crept in through Dravidian and not direct), the influence of Kol is nothing so far-reaching as that of Dravidian, which has been a living force throughout the linguistic history of India and modified Sanskrit and the Prakrits and moulded the formation of the vernaculars.

Non-Aryan influence has been as important in other spheres as in language. We have already seen that the worship of village godlings forms an important part of the villagers' creed and is the remnant of the crude aboriginal worship. There are other bigger problems involved, *viz.*, which other parts of Hindu philosophy and religion are non-Aryan in origin; but they need not detain us here, as they relate to the whole of India and not to the United Provinces in particular.

We may lastly consider the survivals of the non-Aryan system of village organization. Havell says that

' the Aryan system was a scientific organization based upon sanitary laws and inspired by high ethical and social ideals. . . It was a scheme of communal village life, worked out by the practical philosophy of one of the most gifted of the races of mankind . . . The non-Aryan were empirical systems of a primitive agricultural type, such as are found in many countries. These primitive village communities were loosely knit together by tribal customs and motives of self-interest, but they possessed but little capacity for self-improvement, so long as they remained outside Aryan influence and guidance.'⁸⁷ Unfortunately there is no evidence for such beliefs, and the statement does not help us to ascertain facts. To find the truth, we may turn to the sober remarks of Baden Powell, who says: ' There are places in Chota Nagpur, Orissa and elsewhere, where some Dravidian tribes have retained their original customs. From these we can find out what was in all probability the earliest form of village . . . It is only reasonable to believe that the Dravidians in Northern India had very much the same kind of villages. So that the ruling and the superior Aryans, when they came to Northern India, found, at least in parts of the Punjab and the more fertile regions of the Ganges Valley, cultivation already established . . .'⁸⁸ ' And in Upper India, there is no indication that the mass of local agriculturists were connected with the Vaiśya or more than partly Aryan at all. For when the superior Aryan ceased to rule throughout the greater part of the Gangetic valley, the country was re-occupied by Bhar, Pāsi and Cheru and other agricultural tribes, who were certainly non-Aryan.'⁸⁹ Baden Powell further shows that

⁸⁷ Havell, *History of Aryan Rule in India*, 1918, pp. 10-11.

⁸⁸ Baden Powell, *Origin and Growth of Village Communities in India*, 1908, p. 49.

⁸⁹ *Ibid.*, pp. 53-54 n. This is not to deny the existence of an agricultural population among the Aryans.

the Aryans introduced little or no change in the 'severalty' or *ryotwārī* form of village organization which prevailed in India before the Aryans, and that the 'joint' or *zamindārī* system was not earlier than the mediæval times. It has been suggested above that the *zamindārī* system had its beginnings when the Bhars and their allies established themselves as the landed aristocracy under the reigning suzerains. Thus, there is a probability of both the *zamindārī* and the *ryotwārī* systems being non-Aryan in origin.

We thus see that the non-Aryan elements are as strong as the Aryan ones in the present culture of the people, in the United Provinces as elsewhere in Northern India, so much so that this heterogeneous culture cannot be distinctly pronounced to be either Aryan or non-Aryan, its only possible name being 'Hindu.' We need not think that there was a deliberate and intentional borrowing on the part of the Aryans: probably they were too proud to do so. We have no right to look upon these as anything more than survivals. Thus, the village godlings of the non-Aryans were allowed to remain; their worship was tolerated; and at the present day the attitude of the Brāhmaṇas towards them is nothing if not reverential. Hinduism, *i.e.*, the religion that grew up on the eastern side of the Indus, having no dogma or revelation to fall back upon, has always been changing its colour and undergoing a process of evolution.

The non-Aryan traits of the Indian culture have been called 'survivals' above. This may seem to be based on the assumption that the culture is Aryan, in the main with occasional alien features tagged to it. But the time may come when the process will have to be reversed: the historian will then call the Indian civilization non-Aryan in the main with some Aryan traits superimposed upon it.

The study in this direction must be incomplete at the present state of our knowledge. The problem of the non-Aryan has recently assumed a different shape, and a fresh angle of study has been rendered necessary by the chalcolithic discoveries at Mohenjo-daro. Meanwhile, only the problems may be stated. Whether the Hindu god Śiva-*paśupati* was non-Aryan in origin; whether phallic-worship which was detested in R̥gvedic times was later on borrowed from the people of Mohenjo-daro; whether Jainism was indebted for its ideas to the Mohenjo-daro civilization; whether image-worship is native to the soil of India, or was introduced only about the beginning of the Christian era; whether the ceremonial worship (*pūjā*) of gods with flowers was a borrowed idea; whether Kapila and his Sāṅkhya system were non-Aryan; whether the doctrine of *karman* and consequent belief in metempsychosis or transmigration of the soul was a primitive belief adopted by the Aryans; whether the idea of Yoga or meditation which is entirely foreign to the trend of the R̥gvedic and later Vedic thoughts could have developed out of them without the impact of some alien idea,⁹⁰—these and many such other problems can only be solved with the increase of our knowledge of the ‘Urdravidisch.’

⁹⁰ Marshall, loc. cit., Vol. I, pp. 49 ff., pp. 58 ff.; R. P. Chanda, *Survival of the Pre-historic Civilization of the Indus Valley*, *Memoirs of the Archaeological Survey of India*, No. 41, 1929; also, *Sind—Five Thousand Years Ago*, *Modern Review*, 1932, Vol. 52, pp. 151 ff.; Charpentier, *Indian Antiquary*, 1927, pp. 93 ff., 130 ff.



SECTION III

SANSKRIT



“ THE REFERENCES TO THE BRAHMANICAL RELIGION IN THE PALI CANON ”

BY

DWARESH CHANDRA SHARMA

In preparing this monograph, references from the following books have been taken :—

1. Vinayapiṭakam
2. Suttapiṭakam
 - (i) Dīgha Nikāya, (ii) Majjhima Nikāya, (iii) Saṃyutta Nikāya, (iv) Aṅguttara Nikāya and (v) Khuddhaka-nikāya which comprises the following books :—
 - (1) Khuddhakapāṭho
 - (2) Dhammapadam
 - (3) Udānam
 - (4) Itivuttakam
 - (5) Suttanipāta
 - (6) Vimānavatthu
 - (7) Petavatthu
 - (8) Therāgāthā
 - (9) Therīgāthā
 - (10) Jātakam
 - (11) Niddeso.
 - (12) Paṭisambhidāmaggo
 - (13) Apādānam
 - (14) Buddhavaṃso
 - (15) Cariyāpiṭakam
3. Rhys Davids : Dialogues of the Buddha (I—VI).
4. Kindred Sayings (Pāli Text Society).
5. Sutta Nipāta and Dhammapada (S.B.E.).
6. Lalita-Vistara (R. L. Mitra).
7. Buddha-Caritam of Aśvaghosha (S.B.E.).

In putting forward the references to the Brahmanical religion in the Pāli canon, it is necessary to ascertain, first, the position of the Brāhmaṇas in the society at the time when Buddhism arose. It is evident from the nature of the discussions on the matter of the Brahmanical pretensions that the superiority of the Brāhmaṇas over other classes was one of the main bases of the then existing Brahmanism. The three chief occupations of life—war, religion and trade—had already given rise to the three classes, *viz.*, the warriors, the priests, and the traders; which in course of time became hereditary and stereotyped into the three main castes of Kshatriyas, Brāhmaṇas and Vaishyas. These three classes, being of the same origin and of the same religious discipline, stood high in the society. Below them stood the original people of the locality known as the Sūdras.

The priests found this arrangement so convenient to them that they traced its origin to divine appointment. They maintain that 'they alone form the superior class, all other classes being inferior; that Brāhmaṇas alone form the white class, all other classes being black; that purity resides among Brāhmaṇas alone; and not among non-Brāhmaṇas: and that Brāhmaṇas are Brahmā's legitimate sons, born from his mouth, offspring of his, creation of his and his heirs.'

But it is clear from the Piṭakas that this was not admitted by the nobles, and it is also clear that no one of these divisions was a caste. We may conclude from the available evidence that the caste-system did not really exist in its proper sense; the absolute supremacy of the

¹ "Brāhmaṇā va seṭṭho vaṇṇo, hīno añño vaṇṇo, brāhmaṇā va sukko vaṇṇo; kaṇho añño vaṇṇo; brāhmaṇā va sujjhanti no abrahmaṇā; brāhmaṇā va Brahmanño puttā orasā mukhato jātā brahmadā brahmanimmitā brahmadāyādā ti." (M. 93; D. 21).

Brāhmaṇas (not only sacrificial priests, for they followed all sorts of occupations) was not till then universally admitted. It is, however, true that the Brāhmaṇas of yore, by their exemplary habits, generous actions, and self-sacrifice (and not by birth), attained a very high position in the society and commanded respect from all classes.

Although Buddha constantly spoke against the doctrines and pretensions of the Brāhmaṇas (cf. Ambaṭṭha Sutta, Sanadaṇḍa Sutta, The word Brāhmaṇa. (cf. Ambaṭṭha Sutta, Sanadaṇḍa Sutta, Tevijja Sutta or the Dīgha Nikāya), he adopted the appellation 'Brāhmaṇa' into his own system, using it to designate an 'Arhat' or one who has attained final sanctification.² In the Kassapa Sīhanāda Sutta, we find him using the term 'Brāhmaṇa' to designate an 'Arhat':

"From this time, O Kassapa, it is that the Bhikkhu is called a Samaṇa or a Brāhmaṇa."

Again, in Dhammapada,

"The leader, supreme heroic
The great Rishi, the Victor
Without lust and purified,
The Buddha, he is the Brāhmaṇa."³

We find Buddha has himself taken the appellation "Brāhmaṇa."

We find the leading Brāhmaṇas of the time putting forward their false hereditary superiority over all other classes. According to them, "a true Brāhmaṇa is one who is well-born on both sides, of pure descent through the father and the mother back through seven generations

² Mahāvagga i, 1, 3-7; i, 2, 3.

³ *usabham pavaram vīram
mahesim vījitāvinam
anejam nahātakam Buddham
tam aham brāmi brāhmaṇam*
(Dh. verse 422)

with no blot or reproach put upon him in respect of birth,—a repeater of the sacred words, repository of the mystic verses; one who has mastered the three Vedas with the indices, the ritual, the phonology, the exegesis, and the legends as a fifth, learned in idiom and grammar, versed in Lokāyata sophistry, and in the theory of the signs on the body of a great man.”⁴

In reply to the questions and discussions about the superiority of the Brāhmaṇas, Buddha has given hints showing that the Kshatriyas could be superior to Brāhmaṇas if the element of birth was taken to be the criterion of status : he claims superiority of the Kshatriyas to the Brāhmaṇas taking good qualities to be the standard of superiority. Buddha has quoted a verse of Sanat-kumāra (Sanat-Kumāra) as his authority in this connection. We know Sanat-Kumāra of the Brahmanical literature,⁵ who is described both as a teacher of the Yogaśāstra and as one of the mind-born sons of Brahmā. We think Buddha quoted this authority believing that with the growing pretensions of the Brāhmaṇas this utterance might have easily dropped out the official recensions of the Brahmanical texts. According to Sanat-Kumār, “the Kshatriyas are the best among those who put their trust in lineage. But he who is perfect in wisdom and righteousness is the best among gods and men.”⁶

⁴ “*brāhmano ubhato sujāto, mātito ca pitito ca samsud-dhagahaṇiko yāvo sattamū pitāmahāyugā akkhitto anupakkuttho jātivādena ajjhāyako mantadharo tinnam vedānam pāragū, sanighaṇḍukeṭubhānam sakkharappabhedānam itihāsapañcamānam padako veyyākaraṇo, lokāyata-mahāpurisalakkhaṇesu anavayo.* (D. iv, 13),

Cf. Dīgha Nik.—Ambaṭṭha Sutta, Sanadaṇḍa Sutta, Tevijja Sutta, Majjhima Nik. 93. 95.

Āṅguttara. III. CXCI, 1, 58. Jātaka 497, 498.

⁵ For instance, Chāndogya Up. VII.

⁶ “*khattīyo seṭṭho jane tasmim ye gotta-paṭisārino. vijjācaraṇa-sampanno so seṭṭho deva-mānuse ’ti.*” Dīgh, iii. 1, 28.

It was admitted by the Brāhmaṇas that there were Brāhmaṇas, who though claiming to be the highest in social status by their birth, were inferior to many a member of the lowest caste by their manners and habits and inferior qualities; and Buddha pointed out this unreasonable disposition of the social elements.⁷ According to Buddha the individuals are to be high or low according to their respective qualities and not according to the accident of birth.

Though the superiority of the Brāhmaṇas (by birth) was opposed by Buddha, he tried his best to convert the Brāhmaṇas first; and we find that most of his chief disciples were Brāhmaṇas. Though they were in a degenerated position they nevertheless were the religious leaders of the country. It is for this reason that Buddha was anxious to convert them. From the references to Pasenadi in the Majjhima and Aṅguttara Nikāyas it is evident that the King was a follower of the Brahmanic religion, had the Brāhmaṇa Bāvarī as his first Purohita or priest and celebrated sacrifices involving slaughter of hundreds of animal victims. We find rich and influential Brāhmaṇa house-holders like Jānussoṇi (Majjhima I, p. 175), Aggika Bharadvāja (Sutta Nipāta, p. 21) and Dhanañjani (Majjhima II, p. 209) who stood against the teachership of Buddha. There were some distinguished Brāhmaṇa teachers who lived on grants of villages made by the Kings and were held in great respect by the public. These teachers had large numbers of disciples, some of whom used to live in the hermitages and lead ascetic lives.⁸ We find even lady teachers, who had resident pupils

⁷ Cf. Dīgha Nikāya—Ambaṭṭha Sutta; Majjhima Nikāya—Assalāyana Sutta, Madhura Sutta; Aṅguttara I, page 162.

⁸ Cf. Dīgha xii, 1. III, IV, XIII, Majjhima 91, 92, 93, Saṃyutta III, 3, 132. Buddhavaṃsa II, XIV, Apādāna III, 5, 6. XIII, 121, 123, 126, etc.

(Samyutta Nikāya, XXXV, 133, 1—4). These schools of priests were busy in guarding the mystic verses and prevented them from destruction by constant rehearsing. To aid them in their task elaborate commentaries were composed and handed down also by memory. The whole intellectual power of the nation became for a time concentrated on these subsidiary studies. We quote a passage from Apādānaṃ which will throw some light over the ascetic character of the Brāhmaṇa teacher of that time.

*‘ sīlavā vatasampanno jhāyī
jhānarato sadā
pañchabhiññāphalappātto suruci
nāma tāpaso
catubbisahasassāni sissā mayham
upaṭṭhahum
sabbe ca brāhmaṇā ete
jātimanto yasassino
lakkhaṇe itihāse ca sanighaṇḍu
sakeṭubhe
padakā veyyākaraṇā
saddhamme pāramiṅgatū
ajjhāyako mantadharo tinṇam
vedāna pāragū.⁹*

According to Brāhmaṇas the different classes should derive their income from the following sources—(i) a Brāhmaṇa by alms, (ii) a noble by his bows and arrows, (iii) a middle-class man by ploughing and tending cattle, (iv) and a peasant by carrying the crops on the pole slung over his shoulder.¹⁰ The Brāhmaṇas divided service of

Four-fold division of income.

⁹ Apādānaṃ III. 1.

¹⁰ Majjhima Nikāya, 96.

the four classes into four divisions, *i.e.*, (i) service of a Brāhmaṇa, (ii) service of a noble, (iii) service of a middle-class man, (iv) service of a peasant. According to them any member of any of the four classes may serve a Brāhmaṇa; a noble may be served by another noble or by a middle-class man or by a peasant; a middle-class man may be served by another middle-class man or by a peasant; while a peasant may be served only by a peasant.¹¹

Thus from the references it is evident that the Brāhmaṇas took caste-system or superiority of themselves over others as one of the main bases of the then existing Brahmanism.

We find Buddha repeatedly extolling the morals and virtues of the ancient Ṛsis. "The Dhamma," says he, "is the ensign of the Ṛsis."¹²

A passage in the Sutta Nipāta has drawn our special attention, where a gradual history of the Brāhmaṇas has been described by Buddha.

Buddha says—"Not by matted hair, nor by lineage, nor by caste is one a Brāhmaṇa. He is a Brāhmaṇa in whom there is truth, and righteousness. He is pure, he is a Brāhmaṇa."¹³

The exemplary habits, generous actions and self-sacrifice of the ancient Brāhmaṇas, influenced Buddha very much. In reply to the question of the Kosala Brāhmaṇas about the mode of life of the ancient Brāhmaṇas Buddha said:—"The old sages were self-restrained, penitent and having abandoned the objects of the five senses, they studied their own welfare. There were no cattle for the Brāhmaṇas, nor gold, nor corn; the riches and corn of

¹¹ Majjhima, 96.

¹² Aṅguttara Nikāya II, p. 51.

¹³ "na jaṭāhi na gottena na jaccā hoti brāhmaṇo, yamhi saccaṃ ca dhammo ca so suci so ca brāhmaṇo."

(Dhammapada, 393).

meditation were for them, and they kept watch over the best treasures.

“ What was prepared for them and placed as food at their doors, they thought that was to be given to those that seek for what was prepared by faith.

“ With garments of variegated colours, with beds and abodes, the prosperous people from the provinces and the whole country worshipped those Brāhmaṇas.

“ Inviolable were the Brāhmaṇas and invincible. They were protected by Dhamma. No one opposed them (while standing) at the doors of houses anywhere.

“ For forty-eight years they practised juvenile chastity, the Brāhmaṇas formerly went out in search of sciences and exemplary conduct.

“ The Brāhmaṇas did not marry women belonging to another (man), nor did they purchase a wife; they chose to live together in mutual love and affection after their union.

“ Excepting during the period of cessation of the menstruation, the Brāhmaṇas did not indulge in sexual intercourse.

“ They praised chastity and virtue, rectitude, mildness, penance, tenderness, compassion and patience.

“ He who was the best of them, *viz.*, a strong Brāhmaṇa did not (even) in sleep indulge in sexual intercourse.

“ Imitating his practices, some wise men of this world praised chastity, virtue and patience.

“ Having asked for rice, beds, garments, butter and oil, and gathered them justly they made sacrifices out of them and when the sacrifice was made, they did not kill cows.

“ They were graceful, tall, handsome, renowned, Brāhmaṇa by nature, zealous for their several works; as long as they lived in this world they prospered.

“ There came a gradual change in them afterwards, when by constantly seeing the Kings’ prosperity, adorned women, well-made chariots drawn by beautiful horses, carpets in variegated colours, palaces and houses divided into compartments and measured out.

Degradation of
Brāhmaṇas.

“ The great human wealth attended with a number of cows and combined with a flock of beautiful women made the Brāhmaṇas covetous.

“ They, then, composed hymns on such subjects, went to Okkāka, and said, “ Thou hast much wealth and corn, sacrifice (for) great is thy prosperity, sacrifice (for) great is thy wealth.

“ The King, the lord of chariots, instructed by the Brāhmaṇas, brought about Assamedha, Purisamedha, Sammāpāsa, and Vācapeyya without any hindrance and having offered these sacrifices he gave Brāhmaṇas wealth :

Cows, beds, garments, and adorned women, and well-made chariots drawn by noble horses, carpets in variegated colours :

“ Beautiful palaces well-divided into compartments; and having filled these with different corn, he gave this wealth to Brāhmaṇas.

“ And they having thus received wealth wished for a store and the craving of those who had given way to their wishes increased still more : they then composed hymns on these subjects, went again to Okkāka and said, “ As water, earth, gold, wealth and corn, even so are there cows for men, for this is a requisite for living beings; sacrifice (for) great is thy prosperity.”

“ And then the King, the lord of chariots instructed by the Brāhmaṇas caused many hundred thousand cows to be slain in offerings.

“ This is the origin of violence that has come down to us : innocent cows are slaughtered and the sacrificing

priests have fallen off from the 'Dhamma.' So this old and mean 'Dhamma' is blamed by the wise; where people see such a one, they blame the sacrificing priests.

"So Dhamma being lost, the Suddas and Vessikas disagreed: the Khattiyas disagreed in manifold ways: the wife despised her husband.

"The Khattiyas and the Brāhmaṇas and those others who had been protected by their castes, after doing away with their disputes on descent, fell under the spell of sensual pleasures."¹⁴

¹⁴ Sutta Nipāta II, 7.

*isayo pubbakā āsum saññatattā tapassino,
pañca kāmāgūṇe hitvā attadattham acārisum (283).
na pasū brāhmaṇān āsum, na hiraññam na dhāṇiyam,
sajjhāyadhaṇadhaññāsum, brāhmaṇaṃ nidhiṃ apālayum (284);
yaṃ nesaṃ bhatakaṃ āsi dvārabhattaṃ upatthitaṃ,
saddhāpakatāṃ esānaṃ dātave tad amaññisum (285)
nānārattehi vatthehi sayanehi' āvasathehi ca,
phūtā janapadā ratthā te namassimsu brāhmaṇe (286)
arajjhā brāhmaṇā āsum ajeyya dhammarakkhitā,
na ne koci nivāresi kuladvāresu sabbaso (287).
atthacattārisaṃ vassāni (komāraṃ) brahmacariyaṃ carimsu te,
vijjācaraṇapariyitthim acarum brāhmaṇā pure (288).
na brāhmaṇā aññam agamum na pi bhariyaṃ kinimsu te,
sampiyeṇ'eva sanivāsaṃ saṅgantvā samarocayum (289).
aññatra tamhā samayā utuveramaṇim pati,
antarā methunaṃ dhammam nāssu gacchanti brāhmaṇā (290).
brahmacariyaṃ ca silaṃ ca ajjavam maddavaṃ tapaṃ
soraccam avihimsaṃ ca khantiṃ cāpi avaṇṇayum (291)
yo nesaṃ paramo āsi brahmā dalhaparakkamo
so vāpi methunam dhammam supinantena nāgamā (292)
tassa vattam anusikkhantā idh' eke viññujātikā,
brahmacariyaṃ ca silaṃ ca khantiṃ cāpi avaṇṇayum (293)
taṇḍulam sayanam vattham sappitelaṃ ca yāciya,
dhammena samudānetva tato yaññaṃ akappayum
upatthitasmim yaññaasmim nāssu gūvo hanimsu te (294).
sukhumālā mahākāya vaṇṇavanto yasassino
brāhmaṇā sehi dhammehi kiccākiccesu ussukā*

These passages of the Sutta Nipāta (ascribed to Buddha) give us a clear history of the downfall of the Brāhmaṇas : though the statement in the above-mentioned passages may be partial, we can properly consider the atmosphere in which Buddha was born. In the

yāva loke avattiṃsu sukhaṃ edhittha ayaṃ pajā, (297)
tesaṃ āsi vipallāso divāna aṇuto aṇuṃ,
rājino ca viyākūraṃ nāriyo samalaṃkatū (298)
rathe cājaññasam'yutte sukate cittasibbane
nivesane nīrese ca vibhatte bhāgasomite (299)
gomaṇḍalaparibbūḷhaṃ nārīvaragaṇāyutam,
ulāraṃ mānusaṃ bhogaṃ abhijjhāyīṃsu brāhmaṇa (300).
te tattha mante ganthetva Okkākaṃ tad upāgamuṃ
"pahūtadhaṇadhañño" si, (yajassu, bahu te bittaṃ) yajassu
bahu te dhanam" (301).
tato ca rājā saññatto brāhmaṇehi rathesabho,
assamedham purisamedham (sammāpāsam) vācapeyyam
niraggaṇaṃ
ete yāge yajitrūna brāhmaṇānaṃ adā dhanam (302)
gāro sayanaṃ ca ratthaṃ ca nāriyo samalaṃkatū,
rathe cājaññasam'yutte sukate cittasibbane (303)
nivesanāni ramāni suvibhattāni bhāgaso
nānādhaññassa pūretvā brāhmaṇānaṃ adā dhanam (304)
te ca tattha dhanam laddhā sannidhiṃ samarocayun,
tesaṃ icchāratippanānaṃ bhiyyo taṇhā pavaḍḍhatha,
te tattha mante ganthetvā Okkākaṃ punam upāgamuṃ (305).
yathā āpo ca paṭhavi ca hiraññaṃ dhanadhāniyaṃ
evam gāro manussānaṃ parikkhāro so hi paṇinaṃ,
yajassu, bahu te rittaṃ, yajassu bahu te dhanam (306).
tato ca rājā saññatto brāhmaṇehi rathesabho,
nekā satasūhassīyo gāro yaññe aghātayi (307).
eso adhammo daṇḍānaṃ okkanto purāṇo āhū:
adūsikūyo haññanti dhammā dhamṣenti yājaka (311).
evam eso anudhammo porāṇo viññugarahito,
yattha edisakaṃ passati yājakaṃ garahati jano (312).
evam dhamme viyāpanne vibhinnā suddavessikā,
puthū vibhinnā khattiyā, patiṃ bhariyā avamaññatha (313).
khattiyā brahmabandhu ca ye c' aññe gottarakkhita,
jātivādaṃ niraṃkatvā kāmānaṃ vasaṃ upagamuṃ' ti (314).

Mahāyānist work *Lalita Vistara*, we find his father giving presents to the Brāhmaṇas after the birth of Buddha.¹⁵ We find similar things in the *Buddha-Caritaṃ* of Aśvaghosha.¹⁶ From the evidence of the Suttas it is clear that the priests were held in high respect by the Kings; and they were great lovers of truth, a few of them, seldom the learned ones, were wealthy. All of them, even those who were neither learned nor wealthy, had a distinct prestige.

We are surprised at the wonderful spirit of toleration of the Brāhmaṇas of that time. It was precisely the Brāhmaṇas themselves who took the most earnest interest in the new religion, though the new speculations of Buddha were strongly against the supremacy of the Brāhmaṇas and rejected the authority of the Vedas. We think their weakness lay in their love of truth; and Buddha achieved success in his mission to a great extent by appealing to this love of truth.

In the *Brahmajāla Sutta* of *Dīgha Nikāya*, we are told to what extent some of the Brāhmaṇas were degenerated :

they were addicted to visiting shows
 Livelihood by such as nautch dances, singing of songs,
 unfair means. instrumental music, shows at fairs, etc.

They were addicted to games and recreation, to the use of means for adorning and beautifying themselves.¹⁷

Moreover, while living on food provided by the faithful, they were addicted to taking messages, going on errands and acting as go-betweens; to wait on Kings, ministers of state, Kshatriyas, Brāhmaṇas or youngmen, etc. (D. i, 19). They were tricksters (*kuhakā*); droners out (of holy words for pay) (*lapakā*), diviners (*nemittakā*—interpreters of signs and omens), and exorcists (*nippesikā*)—D. i, 20).

¹⁵ *Lalita Vistara*, Chapter VII.

¹⁶ Book I, 89, S.B.E.

¹⁷ *Dīgha Nikāya* 3, 12, 13, 14, 15, 16.

Then we are told of palmistry, divining by means of omens and signs, auguries drawn from the celestial phenomena, prognostication by interpretation of dreams, fortune-telling, auguries drawn from marks on cloth, sacrifices to Agni, offering oblations to various gods, determining lucky sites, repeating charms, laying ghosts, snake-charming, using similar arts on other beasts and birds, astrology, astronomy, the power of prophecy, incantation, oracles, consulting gods through a girl possessed or by means of mirror, worshipping the great one, invoking Sīrī (goddess of luck), vowing vows to gods (*sānti-kammam*), muttering charms to cause virility or impotence, consecrating sites and more of the same kind. (D. i, 21—27).

What have we to infer from all these? Whatever might have been the conviction and purpose of those who composed the canonical texts, it could hardly be doubted that the majority of the common people had implicit faith in these. As the Brahmanic sacrifices accompanied with the killing of hundreds of victims were not easy enough for the common people to be performed, the above-mentioned courses were discovered by the Brāhmaṇas as suited to the masses.

There were Brāhmaṇa schools of rituals; and as part of the ritual was the repetition of sacred words, grammar and recitations were taught there as accessories to correct learning by heart and accurate repetition. In these schools codes of ancient customs were handed down by word of mouth.¹⁸ We find Lohicca, the Brāhmaṇa, established at Sālavāṭikā, a spot teeming with life, with much grassland and woodland and corn, on a royal domain granted him by King Pasenadi of Kosala as a royal gift, with power

¹⁸ Dīgha Nikāya—Ambattha Sutta, Saṇaḍaṇḍa Sutta, Tevijja Sutta; Majjhima Nikāya 93, 95.

over it as if he were the king (D. xiii, 1). Such references are not rare in the Nikāyas (cf. D. iii, 1, M. 91). But in any case there are no references to any central organisation of the priest-hood, or of permanent temples for their gods and sacred shrines for pilgrimages.

There is ample evidence to show that the influence of the Brāhmaṇa priests as religious leaders was declining when Buddhism arose. We find the references of many ascetics (not necessarily Brāhmaṇas) who posed as teachers, and preached different doctrines: they had large numbers of disciples and they were even respected by the King. They had some teachings of their own to propound, something to say apart from tradition: they were in the habit of gathering disciples round them. There seem to have been not a few of such self-elected teachers. We find ample references to six of them.¹⁹ It is worth notice in passing that several of these sophists were women.

The disciples of the various schools lived the lives of hermits and occupied themselves either in meditation or sacrificial rites, or the practices of self-torture; because there was a general belief that there existed an abiding

¹⁹ Heads of the six sects:—(i) Pūraṇa Kassapa, who taught that it did not matter whether actions were good or bad.

(ii) Makkhali, the Ājivaka, who taught purification through transmigration, *i.e.*, pain ends only when the allotted term of successive existences has been completed.

(iii) Ajita, who held the theory of annihilation of the individual at his physical death.

(iv) Paduka Kaccāyana, who held the theory of seven elementary substances (*i.e.*, earth, water, fire, air, ease, pain and the soul) which are eternal and aloof; so that "there is neither any slayer nor the cause of slaying, no hearer, no speaker, no knower, no explainer."

(v) Nātaputta, the Niganṭha or Jain:—Who held the theory of fourfold bond of self-restraint whereby evil is washed away and kept at bay.

(vi) Jāṭilas:—They were Brahmanical fireworshippers who held the doctrine that actions receive their results and that our deeds have their results.

principle, a self, or soul within man which persisted after death. (D. iii. 10—16, D. ix). The soul received rewards in heaven and rebirth on earth in ameliorated conditions of life, if the 'Karma' or action of previous existences of life had been good. It was awarded penalties in hell and rebirth in degraded conditions of life if its actions had been evil. Therefore, extreme asceticism came to be the ideal whereby man could free his soul from both good and evil actions.

We find there was a general tendency to embrace asceticism : because the very man whom under ordinary circumstances, you would treat as a slave or a servant, would be treated with high honour and respect after he had joined the order. And this is the thing that tempted the majority of the people to join the order. We are quoting the following interesting passages from the *Sāmaññaphala Sutta* of *Dīgha Nikāya* :

“ Now what do you think, O King, suppose among the people of your household there were a slave who does work for you, rises up in the morning before you do and retires earlier to rest, who is keen to carry out your pleasure, anxious to make himself agreeable in what he does and says, a man who watches your every look. Suppose he should think, “ strange is it and wonderful, this issue of meritorious deeds, this King of Magadha, Ajātasattu, the son of the Videha princess,—he is a man, and so am I. But the King lives in the full enjoyment and possession of the five pleasures of sense,—a very good thing, methinks,—and here am I, a slave, working for him, rising before him and retiring earlier to rest, keen to carry out his pleasures, anxious to make myself agreeable in deed and word, watching his every look. I too might earn merit. Why should not I have my hair and beard shaved off and don the yellow robes, and going forth from the

household state renounce the world? ' And suppose after a time, he should do so. And having been admitted into the order, should dwell restrained in act and word and thought, content with mere food and shelter, delighting in solitude. And suppose your people should tell you of this, saying, " If it pleases your majesty, do you know that such a one, formerly your slave, has now donned the yellow robes, and has been admitted into an order and dwells restrained, content with mere food and shelter, delighting in solitude." Would you then say: " Let the man come back; let him become a slave again and work for me? " (D. ii, 35).

Nay, Lord, rather we greet him with reverence, and rise up from our seat out of reverence towards him and press him to be seated. (D. ii. 36).

In this dialogue, neither in question nor in answer is there any reference specially to the Buddhist order. It is taken for granted that any one who had devoted himself to the religious life of any order would be treated with equal respect and courtesy.

Now we come to the most important question of the Brahmanical scriptures. There were the Brāhmaṇa schools of rituals; and as part of the Vedas. ritual was the repetition of sacred words, grammar and recitation were taught there as accessories to correct learning by heart and accurate repetition. And in these schools codes of ancient customs were handed down by word of mouth. There is constant mention of the three Vedas and the ancient lore connected with the three.²⁰

We find that Atharva is never mentioned as a Veda in the canonical books; but there are references to

²⁰ Digha Nikāya—Tevijja Sutta, Sanadanda Sutta, Ambaṭṭha Sutta; Majjhima Nikāya. 93, 95; Buddhavaṃsa 2, 5. 14, Apādanam III, 1, 3, 6; Anguttara III. CXCI, 1, 58.

the poking fun at the trickery of witchcraft and sorcery and denying any efficiency either to it or to the magic of the sacrifice. We think the collection of charms to be used in sorcery had been actually put together which after a considerable time was acknowledged by the priests as a Veda, *i.e.*, Atharva Veda.

These magical rites are performed with the belief that the things desired by an individual can be gained by virtue of those rites: and moreover, the belief in the efficiency of these rites (such as *sānti-kammaṃ*, *pinidhi-kammaṃ*, *bhūri-kammaṃ*, *vassa-kammaṃ*, etc.) inspires one with the idea that abnormal powers can be acquired through them. So the magical rites took the place of the Vedic rites: and for all these things the help of the Brāhmaṇa was required and had to be richly paid. Buddha held himself aloof from these rites and discarded them as low arts. He says, "The worship of the sun, the worship of the Sīrī, the goddess of luck, the vowing of gifts to a god for the grant of benefit, the offering of sacrifices to gods are low arts from which Gotama, the recluse holds him aloof."²¹ In his discussions with Bhāradvāja and Vāseṭṭha, he protested emphatically against the revealed character of the Vedas by remarking that the ancient sages Atṭhaka, Vāmaka, Vāmadeva, Vessāmitta, etc., never saw Brahman from whom they stated that they received the Vedic texts."²²

In the Tevijja Sutta of Dīgha Nikāya, we find the real key to the Brahmanical philosophy, *i.e.*, the aim of life should be to know inwardly and consciously the Great Soul of all (*i.e.*, Brahmanas); and that by this knowledge one's individual soul would become

²¹ Rhys Davids: Dialogues of the Buddha I, p. 24.

²² Dīgha Nikāya, XIII; M, 99.

united to the Supreme Being, the true and absolute self.²³ We have no detailed references to the Vedas or the Vedic rites in the canonical works, we have to discuss.

The elaboration of the Brahmanic sacrifices accompanied with the killing of hundreds of animals had al-

Animal Sacri- ready run a long course and grew into a
fice. highly complex system of ritualism. It was not easy to be performed by the common people with their laborious construction of altars, collection of numberless requisites, recitation of mantras, chanting of hymns and expiation of errors by means of rituals. In fact the necessity for sacrificial acts was to secure the favour of the gods. In the Mahāvāna work, the Buddha-caritaṃ of Aśvaghosha, we find "King Suddhodana (father of Buddha) worshipping with due ceremonies the brilliant 'Agni' that tutelary god of the Aṅgirasas, for his son's long life. We find him offering oblations in a large fire, and giving gold and cows to the Brāhmaṇas."²⁴ There it is mentioned that the husband and wife are both consecrated in sacrifices; both are purified by the performance of the Vedic rites and both are destined to enjoy the same results afterwards.²⁵

In the Samyutta Nikāya we find King Pasenadi of Kosala celebrating sacrifices involving slaughter of hundreds of animal victims :

tena kho pana samayena rañño pasenadi-kosalassa mahā-yañño paccupatthito hoti pañca ca usabha-satāni pañca ca vacchataṛa-satāni pañca ca vacchataṛi-satāni pañca ca ajā-satāni pañca urabbha-satāni thūnūpanitāni honti yaññatthāya.

ye pi-ssa te honti dāsā ti vā peṣṣā ti vā kammakārā ti vā te pi danda-tajjita bhaya-tajjita assumukhā rudamānā parikkammāni karonti." (Samyutta Nikāya. III, 1, 9).

"Once upon a time King Pasenadi of Kosala arrang-

²³ *aho vatāhaṃ kāyassa bheda parammaranā brāhmaṇa-mahāsāllānaṃ vā sahaṃyataṃ uppajjeyyan'ti.*—M. iii, 2, 10.

²⁴ Buddha-caritaṃ (S.B.E.), Book II, 36-37.

²⁵ Buddha-caritaṃ (S.B.E.), Book VII, 63.

ed to perform a sacrifice. Five hundred bulls, five hundred bullocks and as many heifers, goats, and rams were led to the pillar to be sacrificed. And they that were slaves, menials and craftsmen, hectorated about by blows and by fear, made the preparations with tearful eyes."

Similar references of animal sacrifice we have to show; but in fact a reaction from an overdone ritual had already set in.²⁶ The argument placed before Buddha by the Brāhmaṇas in favour of the sacrifice was—'one who performs a sacrifice and one for whom a sacrifice is performed, are both led to higher life.'²⁷ There were some among the Brāhmaṇas and the Samāṇas, who rested their faith on continual offer of oblations of some kind to the gods in fire throughout life, and the burning of their bodies at death was held to be the last offering of themselves in fire.²⁸

About fire-sacrifice we find innumerable references in the Nikāyas. It indicates that fire-worship was quite in vogue at that time.²⁹ Buddha has given reference to two kinds of Brahmanical sacrifice (*i.e.*, Āmisayāgo and Dhammayāgo—Itivuttakam 100, cat., 1.) but he preferred Dhammayāgo to Āmisayāgo. In the Saṃyutta Nikāya, we find that Buddha had a discussion with a class of Brāhmaṇas who were called 'Ahimsako' (Saṃyutta VII, 1, 5) and who abstained from killing animals. From these evidences we can guess that Ahimsā or abstinence from killing animals more or less developed as a religious doctrine was already in the air before Buddha arose to preach the religion.

In the Aṅguttara Nikāya (XLIV, 2—13) there is a discourse of Buddha on the right sacrifice, and we find

²⁶ Majjhima Nikāya 51, Aṅguttara Nikāya XLIV, 1.

²⁷ Aṅguttara 1, chap. III, 60, 1.

²⁸ Vinaya, Mahāvagga I, 15, 1, 2, 3.

²⁹ Majjhima Nikāya 12, 92, 98; Saṃyutta, i, VII, 1; 8. Dhammapada 107, Sutta Nipāta III, 7, 21; Jātaka 61, 162.

Buddha giving his own interpretation to the three kinds of fire—*āhuneyyaggi*, *gahapataggi*, *dakkhineyyaggi*.³⁰ He says, “*ime kho brāhmaṇa tayo aggī sakkatvā garukatvā mānetvā pūjitvā sammā sukhaṃ parihātabbā.*”

We know that the Sun (*Sūrya*) is an important god in the Vedas, we find references to the worship of this god in ‘the Dialogues of the Buddha.’

“O Vāsetṭha, the Brāhmaṇas versed in the three Vedas, who can very well like other ordinary folk see the moon and the sun as they pray to, and praise, and worship them, turning round with clasped hands towards the place whence they rise and where they set, are those Brāhmaṇas able to point out the way to a union with the moon or the sun?”³¹

³⁰ “As a general rule the householders was contented with kindling the sacred fire in a single hearth or circular clay receptacle. This was called the *grihyāgni* (i.e., *gahapataggi*) or household fire; and was sufficient for all domestic ceremonies. Those, however, who were more pious or who wished to engage in Vedic sacrificial rites which were of a more complicated character took care to construct a more elaborate Homa-Śālā, on the ground-floor. In that sanctuary fire was kindled in three differently shaped receptacles, the fire in each having a different name (*āhavanīya*, *gārhapatya* and *dakṣiṇa*). When the sacred fire was thus lighted it was regarded as a symbol of God present in the house, as ‘the brilliant guest’ who lived in the midst of the family (Rig. Ved. X, 91, 2), the divine mediator who bore the savour of daily offerings towards heaven, the golden link of union between men on earth and the celestial denizens of the air and the sky. Every morning and evening the head of the family with his wife and children, went together into the room dedicated to worship. There they seated themselves around the sacred fire saying, “We approach thee, O fire, daily both morning and evening with reverential adoration in our thoughts.” Then they fed the sacred fire with pieces of consecrated wood (*samidh*) generally taken from the Palāśa tree, and with rice and butter, eating portions of these offerings themselves” (M. Williams, p. 365).

³¹ *tam kiṃ maññasi Vāsetṭha? yaṃ passanti tevijja brāhmaṇā candima-suriye, añño vā pi bahujano, yato candima-suriyā uggacchanti yattha ca ogacchhanti āyācanti thomayanti pañjalikā namassamānā anuparivattani-pahonti candima-suriyānam sahayatāya maggāṃ desetum* (Digha XIII, 19).

In the Jātaka stories we find a prayer to the Sun :

“ There he rises, King all-seeing,
 Making all things bright with his golden light,
 Thee, I worship, glorious being,
 Making all things bright with thy golden light,
 Keep me safe, I pray,
 Through the coming day.³²

We find sixty-two different theories of existence in detail in the Brahmajāla Suttanta of the Dīgha Nikāya.

Philosophical
 views.

Brahmanism allowed various shades of philosophic and religious views to grow up within its fold without taking objection to their existence within its limits. These views confirm in every particular the picture we find in the old Upanishads: and we think these are the bases of the six famous schools of the Brahmanical philosophy.

The sixty-two heresies are as follows:—

1—4. *Sāssata Vādā*—People, who, either through meditation of the three degrees, or through logic and reasoning have come to believe that both the external world as a whole and the individual souls are eternal.³³

5—8. *Ekacca-Sassatikā, Ekacca-Asassatikā*—Those, who in four ways hold that some souls are eternal and some are not (D. i, 2, 1).

(a) The supreme one, Brahma, is eternal but not the individual souls.

³² Jātaka, 159. (Translation Cambridge University Press).

³³ Dīgha, i, 3, 32. *tatra, bhikkhave, ye te samaṇa-brāhmaṇā sassatavādā sassatam attānaṃ ca lokaṃ ca paññāpenti catuhi vatthūhi, tad api tesam bhavantaṃ samaṇa-brāhmaṇānaṃ ajānataṃ apassataṃ vedayitaṃ tanhāgotānaṃ paritasita-cipphanditaṃ eva.*

- (b) Gods are eternal, but not the individual souls (D. i, 2, 9.)
- (c) Those who hold that certain illustrious gods are eternal but not the individual souls (D. i, 2, 12.).
- (d) Those who hold that, while the bodily forms are not eternal there is a subtle something, called heart or mind, or consciousness which is eternal.³⁴

9—12. *Antānantikā*—Those, who in four ways set forth the infinity or finiteness of the world (D. i, 2, 16.)

- (a) Those, who hold the world to be finite.³⁵
- (b) Those, who hold the world to be infinite.³⁶
- (c) Those, who hold the world limited in the upward and downward directions but infinite across; they declare both the former conclusions to be wrong (D. i, 2, 19.)
- (d) Those, who hold that this world is neither finite yet nor infinite.³⁷

13—16. *Amarā-Vikkhepikā*—Those, who equivocate about virtue and vice (D. i, 2, 23.)

- (a) From fear lest, if they express a decided opinion, grief (at possible mistake) will hurt them.³⁸
- (b) From fear lest, they may form attachments which will injure them (D. i, 2, 25.)

³⁴ *yaṃ kho idhaṃ vuccati cakkhun ti pi sotā ti pi ghānaṃ ti pi jīvā ti pi, kāyo ti pi ayaṃ attā anicco addhuvo asassato vipariṇāmadhammo, yaṃ ca kho idhaṃ vuccati cittaṃ ti vā viññānaṃ ti vā maṇo ti vā ayaṃ attā nicco dhuvo sassato avipariṇāmadhammo sassati-samaṃ tath'eva ṭhassattitī. (D. i, 2, 14.).*

³⁵ *antavā ayaṃ loko parivattamo, D. i, 2, 19.*

³⁶ *ananto ayaṃ loko aparivanto. D. i, 2, 18.*

³⁷ *n'evāyaṃ loko antara na pañānanto. D. i, 2, 20.*

³⁸ *musā-vāda-bhayaṃ musā-vādaparijegucchā n' ev' idhaṃ akusalan ti vyākaroṭi. D. i, 2, 24.*

(c) From fear lest, they may be unable to answer skilful disputants (D. i, 2, 26.)

(d) From dullness or stupidity (D. i, 2, 27.)

17-18. *Adhicca-Samuppannikā*—Those, who in two ways maintain that the soul and the world arise without a cause (D. i, 2, 30.)

19—50. *Uddham-Āghatanikā*—Those, who believe in the future existence of human souls (D. i, 2, 37.)

(a) Sixteen phases of the hypothesis of a conscious existence after death :

- (1) The soul has form.
- (2) „ „ is formless.
- (3) „ „ has, and has not form.
- (4) „ „ neither has, nor has not form.
- (5) „ „ is infinite.
- (6) „ „ is finite.
- (7) „ „ is both.
- (8) „ „ is neither finite nor infinite.
- (9) „ „ has one mode of consciousness.
- (10) „ „ has various modes of consciousness.
- (11) „ „ has limited consciousness.
- (12) „ „ has infinite consciousness.
- (13) „ „ is altogether happy.
- (14) „ „ is altogether miserable.
- (15) „ „ is both.
- (16) „ „ is neither happy nor miserable.

(b) Eight phases of the hypothesis of an unconscious existence after death :

- (1) The soul has form.
- (2) „ „ is formless.

- (3) The soul has, and has not form.
- (4) „ „ neither has, nor has not form.
- (5) „ „ is infinite.
- (6) „ „ is finite.
- (7) „ „ is both.
- (8) „ „ is neither finite nor infinite.

(D. i, 3, 1-2.)

- (c) Eight phases of hypothesis of an existence between consciousness and unconsciousness after death. (D. i, 3, 5—8.)

51—57. *Uccheda-Vādā*—Those, who teach the doctrine that there is a soul but that it will cease to exist³⁹

- (a) On the death of the body here.

- (b) At the end of the next life.

- (c—g) At the end of the subsequent lives (D. i, 3, 9—16.)

58—62. *Diṭṭha-dhamma-nibbāna-vādā*—Those who hold the doctrine of happiness in this life, who in five ways maintain the complete salvation, in this visible world of a living being (Dīgha Nikāya, i, 3, 19.)

- (a) By a full, complete, and perfect enjoyment of the five senses.⁴⁰

- (b) By an enquiring mental abstraction (the first *jhāna*).

- (c) By undisturbed mental bliss untarnished by enquiry (second *jhāna*. D. i, 3, 22).

³⁹ D. i, 3, 9. *eke samaṇa-brāhmaṇā uccheda-vādā sattassa ucchedam vināsam vibhavam paññāpentī sattāhi vatthūhi.*

⁴⁰ *yato kho bho ayaṃ attā pañcahi kāmagaṇehi samappito samaṅgibhūto paricāreti, ettavatā kho bho ayaṃ attā parama-diṭṭha-dhammanibbānaṃ patto hotīti.* D. i, 3, 21.

- (d) By mental calm, free alike from joy and pain and enquiry (third *jhāna*, D. i, 3, 23).
- (e) By that mental peace plus a sense of purity (fourth *jhāna*.)

It is evident from these references that there was much earnest thinking and fearless philosophising at the time when Buddhism arose.

All the philosophical and the religious theories were based on the belief in a subtle but material 'soul' inside the body and in shape like the body. When the soul was away the body lay still, without moving, without life. In the Poṭṭhapāda Sutta of the Dīgha Nikāya, we find an elaborate discourse on the soul theory. The Sutta begins with a discussion on the mystery of trance and passes over to the question of soul. Poṭṭhapādā pointed out that the trance (*Abhiññā-nirodha*) had been explained by the Brāhmaṇas as the result of the soul having gone away out of the body. When the soul came back, motion and life began again. Endless corollaries were the outcome of this theory.

Poṭṭhapāda said to Buddha,—“ But long ago, sir, on several occasions, when various teachers, Samaṇas and Brāhmaṇas had met together, and were seated in the debating hall⁴¹ the talk fell on trance and the question was “ How then, sirs, is the cessation of consciousness brought about ? ”

Some replied thus : “ Ideas come to a man without a reason and without a cause, and so also do they pass away. When they spring up within him, he becomes conscious; when they pass away, he becomes unconscious.” Thus did they explain the cessation of consciousness.

⁴¹ We hear of halls set apart for the ascetics or the philosophical teachers of different sects, for the discussion by them of their systems of belief. Such was the Hall in Queen Mallikā's park at Sāvattthi (Dialogues of Buddha, I, page 244).

On that another said, "That, sirs, will never be so as you say. Consciousness, sirs, is a man's soul. It is the soul that comes and goes. When the soul comes into a man he becomes conscious, when the soul goes away out of a man he becomes unconscious. Thus did others explain the cessation of consciousness."⁴²

On that another said, "That, sirs, will never be as you say. But there are certain Samanas and Brāhmanas of great power and influence. It is they who infuse consciousness into a man, and draw it away out of him. "When they infuse it into him, he becomes conscious." Thus do others explain the cessation of consciousness (Dialogues of Buddha ix, 6.)

Thus has Buddha summarized the Brahmanical views on the shape and form of the soul.

"The following are the three modes of personality :— (i) material, (ii) immaterial, (iii) formless. The first has form, is made up of the four elements, and is nourished by solid food. The second has no form, is made up of mind and has all its greater and lesser limbs complete. The third is without form and is made up of consciousness only."⁴³

From the above-mentioned theory arose 'Karmavāda.'

Rebirth according to 'Karma'.

According to this view the soul receives rewards in heaven and rebirth on earth in good conditions of life, if the Karma or actions of previous life, be good: it is awarded

⁴² *taṃ añño evaṃ āha: na kho nāmetāṃ bho evaṃ bhaviṣṣati saññā hi bho purisassa attā, sā ca kho upeti pi apeti pi yasmiṃ samaye upeti saññā tasmā samaye hotīti itth'eke abhisaññānirodhaṃ paññāpenti*—Potthapāda Sutta. 5.

⁴³ *tayo kho'me Potthapāda attapaṭilābhā olāriko attapaṭilābho, manomayo attapaṭilābho, arūpo attapaṭilābho, katamo ca Potthapāda olāriko attapaṭilābho? rūpi cātummahābhūmiko kabalinkāra-bhakkho, ayam olāriko attapaṭilābho katamo manomayo attapaṭilābho? rūpi manomayo sabbaṅgo-paccāṅgi ahinindriyo sabbaṅga-paccāṅgi ahinindriyo ayam manomayo attapaṭilābho. katamo ca arūpo attapaṭilābho? arūpi saññāmayo ayam arūpo attapaṭilābho*—Dīgha i, IX, 39.

penalties in hell and rebirth in degraded conditions of life if its actions be evil.⁴⁴

In the *Saṃyutta Nikāya* we find references to the various theories of *Kammavāda*. We are citing below some of these beliefs.

“ There are some recluses and *Brāhmaṇas*, believers in *Karma*, who declare that ill was self-wrought; some say that ill was wrought by an outside agency, and there are others who say that ill was wrought by neither, but happened by chance (*Saṃyutta*, ii, 3, 24).

“ There are some recluses and *Brāhmaṇas*, believers in *Karma*, who declare that happiness and ill have been wrought by one's self, some would say that happiness and ill have been wrought by an outside agency and there are others who say both cases are true; certain others, who say that neither case is true, but that happiness and ill arise by chance (*Saṃyutta*, ii, 3, 26).

Therefore extreme asceticism came to be an ideal whereby man could free his soul from both good and evil actions.⁴⁵ We repeatedly hear Buddha discoursing gravely on his visits to various heavens. Even we find him discussing the destiny of persons and predicting where one will be reborn. A visit to the *Brahmaloka* is described by him.⁴⁶ Often we find *Brahmā* and *Indra* discussing with Buddha as earthly beings. Buddhism had no concern with the gods and heaven. We think that these are an outcome of the beliefs of the then-existing Brahmanism. Though Buddha rejected the soul theory yet directly or indirectly he was a believer in *Karma*.

Now we shall discuss the references of the Brahmanical gods in the canon.

⁴⁴ *Majjhima Nikāya* 41, 42. *Dīgha Nikāya* VII, VIII.

⁴⁵ *Majjhima* 41, 42. *Dīgha* VII, VIII.

⁴⁶ *Majjhima*, 1, p. 326. *Anguttara* II, p. 20.

We have already mentioned the Vedic god Agni (*i.e.*, the fire-god). From the references available in the canon,

we consider that Agni was the only
Vedic Gods. Vedic god, who did not lose his
popularity and did not undergo any change. We find
innumerable references of sacrifices to Agni.⁴⁷ The aim of
fire-worship was to attain 'Brahmaloka'.⁴⁸

We find Buddha saying :—

“ The principal thing in sacrifice is the sacred fire, the principal thing amongst the hymns is the Sāvitti; the King is the principal amongst men; and the sea, the principal amongst waters.”⁴⁹

We find there were some sects, whose only duty was to maintain fire perpetually. Jaṭilas and Aggikas were of this kind. We have also mentioned the worship of the sun-god and moon-god. But their worship was somewhat like prayer. There is not a single reference to show that the worship of other Vedic gods, *viz.*, Indra, Prajāpati, Varuṇa, etc., was prevalent at the time represented by the canon. We find Sakka taking the place of Indra and in conjunction with Brahmā-Sahampati leading the thirty-three gods. These thirty-three gods are all of Vedic origin. The Mahāsamaya Sutta of Dīgha Nikāya, gives us a long list of gods. Such references are available in the Ātānātiya Suttanta of the Dīgha Nikāya. Here we find how all the gods came to pay homage to Buddha. We are told of the spirits of Earth and of the great mountains and the guardians of the four quarters.

Then we find the Gandharvas, the heavenly musicians, the Nāgas, the serpents, the Garuḷas, half men and half

⁴⁷ Majjhima Nikāya, 12, 92, 98. Saṃyutta 1. VII, 1, 8. Dhammapada 107. Sutta Nipāta III, 7, 21. Jātaka 61, 162, 495.

⁴⁸ *aggidārum āharitvā ujjālesim ahaṃ tadā uttamattamaṃ gavesanto brahma-lokūpapattiyā* ”—Apādanam XLI, 398.

⁴⁹ “ *aggihuttamukhā yaññā, sāvittī chandaso mukham, rāja mukham manussānam, nadīnam sāgaro mukham* ”—Sutta Nipāta III, 7, 21.

birds. Then comes a goodly crowd of titans and sixty kinds of gods. In the list we meet only with six Vedic gods. So it is doubted whether all these gods were of Brahmanical origin.

We find *Īsāna*, *Soma*, *Varuṇa*, *Pajāpati*, *Vāyū* and *Veṇhu* (*Vishṇu*). But from the nature of the references we can understand that these names had no importance at that time.

It is certain that other popular deities were in existence in place of the Vedic gods. Possibly they were of non-Vedic origin. They were possibly

Non-Vedic deities. the developments of local fetishes once held in veneration by the uncivilized aboriginal tribes and afterwards grafted into the system by the *Brāhmaṇas* whose policy was to appropriate and utilize all existing cults, customs and superstitions. We find references to serpent-worship, tree-worship, river-worship, etc., in the *Jātaka* stories.⁵⁰

They were consulted as oracles, and were expected to give sons and wealth. We find people offering animal sacrifice to the holy banyan tree in order to gain sons and wealth (*Jātaka*, 50). In *Jātaka*, 19, we find the people offering sacrifices with animals when undertaking a journey. Instead of the Vedic gods of high character with kind and glorious heart, we find evil spirits and ghosts of animistic beliefs. The people of that time had come to believe in the existence of ghosts or spirits; and these spirits were supposed to animate and reside in the various external things, such as trees, rivers, etc. This belief played a great part in the daily thoughts of the ordinary people of those days and led them to the reliance on omens, spells and magic rites. In the *Jātaka*, 77, we find reference to one such superstition. There it is mentioned that a man

⁵⁰ *Jātaka* 5, 50, 472, 474, 488, 98, 109.

offered goats in sacrifice at the junction of four roads in order to avert the effect of evil dreams.

Buddha was once staying near Rājagaha in Bamboo Wood at the Squirrels' Feeding ground. Now at that time

one young Sigāla, a house-holder's son,
 Worship of rising betimes, going forth from
 several quarters.

Rājagaha, and with wet hair, wet garments and clasped hands uplifted, paid worship to the several quarters of the earth and the sky—the east, the south, the west, and the north, the nadir and the zenith. Questioned about that by the Exalted one, he said, “ Sir, my father when he was dying, said to me : Dear son, you should worship the quarters of the earth, and the sky. So I, Sir, honouring my father's words, reverencing, revering and honouring my father's words, reverencing, revering and holding it sacred, rise betimes and leaving Rājagaha worship in this way.”⁵¹

Then we have references to the Brāhmaṇas who maintain and hold that by washing the outward body, they

Holy bath. will clear the inward mind; and they go
 down to the water punctually thrice

before nightfall to wash away the evil within.⁵²

In the Mahāyānist works Lalita Vistara and the Buddhacarita of Aśvaghoṣa, we find Suddhodana, father of Buddha, bathing to purify his body and mind with water of holy places and of holy feelings and drinking Soma-juice as enjoined by the Vedas.⁵³

⁵¹ *pitā maṃ bhante kālaṃ karonto avoca—“ disā tāta namasseyjāsiti.”* so *kho aham bhante pitu vacanam sakkaronto garukaronto mānento, pūjento kālass'eva utthāya Rājagahā nikkhamitvā alla-vattho alla-keso pañjaliko puthu-disā namassāmi puratthimaṃ disaṃ heṭṭhimaṃ disaṃ uparimaṃ disaṃ'ti.* Dīgha Nikāya xxxi, 1, 2.

⁵² M. 45, 1, 55. Samyutta VII, 2, II.

⁵³ Buddhacarita S. B. E. II, 36-37.

In the Jātaka stories we find references to the various festivals, such as, the Kattika-festival, the elephant-festival, the Aṣṭakā-festival and so on. Festivals.

We have no detailed accounts of these festivals. From the references we know that the Kattika-festival was celebrated in the month of Kārtika. It was a night festival, when the city was decorated like a city of the gods and people kept holiday (Jātaka, 147).

The elephant-festival was performed by the Kings. All the elephants of the state stood in a range and learned Brāhmaṇas uttered mantras and took valuable presents from the King (Jātaka, 163).

The Aṣṭakā festival was celebrated regularly in the winter season. We find accurate details of the festival in the Brahmanical scriptures, the Grihya Sūtras. There we find that it was celebrated when the moon was on the wane during the winter months, Mārgaśīrsha, Taiśha, and Māgha (Mahāvaggo 1, 20, 15.)

The Uposatha ceremony.—From the references in the canonical books, we come to know that this festival was performed by the different Samanas even by Buddha. We know it was a Vedic festival. (Mahāvaggo II, 1, 1, 2, 3.)

In Subha-Sutta of the Majjhima Nikāya, we find Subha, a learned Brāhmaṇa, putting forward Brahmanical doctrines for the attainment of religious merit. To Buddha he put forward the views of the religious Brāhmaṇa teachers, saying that they specified five qualities for the attainment of merit and the achievement of what was right. These qualities were—truth (*sacca*), austerities (*tapa*), chastity (*brahmacariyam*), study (*ajjhenam*), and munificence (*cagam*).⁵⁴

⁵⁴ “*brāhmaṇā pañca dhamme paññāpentī puññassa kiriyāya kusalassa ārādhanāyāti, sace te agaru sādhu te pañca dhamme imasmim prisatiṃ bhāsassati.*”

“Brāhmaṇas specify five qualities for the attainment of merit and the achievement of what is right. O Gotama, first, they rank truth, next austerities, then chastity followed next by study and lastly by munificence. These are the Brāhmaṇa's five qualities for the attainment of merit and the achievement of what is right.”

We find the religious Brāhmaṇas of that time leading lives in accordance with the above-mentioned tenets. But there was no hard and fast rule about these tenets. Generally the Brāhmaṇa youth went to a family of teachers and learnt the Vedas. The study of the Vedas was observed as one of the foremost duties of a Brāhmaṇa youth. He who wanted to lead a household life, had to return from his teacher and keep up his memory of the Vedas by repetition. For a house-holder the first part of his life (*i.e.*, the time when he was engaged in the study of the Vedas) was the life of Brahmacariya (*i.e.*, chastity).⁵⁵ The truth or the attainment of truth (*i.e.*, union with Brahma) was the aim of his life. So, one had to observe truthful life, as truthfulness was one of the foremost means for the attainment of religious merits. There was a strong belief in the special efficacy and holiness of austerities (*i.e.*, *tapas*). It is clear from the Suttas that the practice of austerities or self-mortification had already been carried out to a considerable extent not only among the Brāhmaṇas

“*saccam kho, bho Gotama, brāhmaṇā paṭhamam dhammam paññāpentī puññassa kiriyāya kusalassa ārāhanāya. tapam kho bho Gotama brāhmaṇā dutiyam dhammam paññāpentī puññassa kiriyāya kusalassa ārāhanāya, brahmācariyam kho bho Gotama, brāhmaṇā tatiyam dhammam paññāpentī puññassa kiriyāya kusalassa ārāhanāya; ajjhenam kho bho Gotama brāhmaṇā catuttham dhammam paññāpentī puññassa kiriyāya kusalassa ārāhanāya, cāgam kho, bho Gotama, brāhmaṇā dhammam paññāpentī puññassa kiriyāya kusalassa ārāhanāya.*” (M. II, 99.)

⁵⁵ Majjhima 99. Samyutta VII, 1, 5—7.

but also among the teachers of various sects. The belief was that the mystic, extraordinary superhuman faculties could be attained by *tapas*. It was of various kinds. In the *Dīgha Nikāya* we find an ascetic enumerating twenty-two methods of self-mortification in respect of food and thirteen in respect of clothing (*Dīgha*, *Patika-Suttanta*). However, we find the *Brāhmaṇas* leading hermits' lives. But whether they were practising such self-mortifications also or not, we cannot know from these references. We know these *Brāhmaṇa* hermits leading lives in meditation or in sacrificial rites and in teaching their pupils. They were of highly pious character and well-versed in the three *Vedas* (*Apādānaṃ*, III, 398—405).



SECTION IIIa

HINDI



MATERIALS FOR THE STUDY OF THE PUṢṬIMĀRGA

BY

MR. GURU PRASAD TANDON, M.A., LL.B.,

Research Scholar, 1932—33

CONTENTS

Materials for the Study of the Puṣṭimārga :

Origin and Development of the Sampradāya.

Importance of the Mārga from the point of view of
the Hindi Literature.

Comparative scarcity of the published literature and
its causes.

A general survey of the material.

Literature on the Philosophic aspect.

Literature on Bhakti or the Devotional aspect.

Literature on the Historical aspect.

Conclusion.

Appendices :

I. Sāmpradāyik Literature in Sanskrit.

II. Sāmpradāyik Literature in Hindi.

III. Sāmpradāyik Literature in Gujrati.

IV. Literature for the study of the Puṣṭimārgain
English.

Origin and Development of the Sampradāya.—The wonderful outburst of the doctrine of devotion (Bhakti) that held its sway all over India during the fifteenth and sixteenth centuries of the Christian Era had one of its chief fountain in the Puṣṭimārga propounded by Vallabhacharya. The Puṣṭimārga or better known as 'Śuddhādvaita Vedānta or Śuddhādvaita Brahma Vāda (the doctrine of non-dualism without entities) is one of the several schools of philosophy in India that are based on the authority of the Brahma Sūtras, Upaniṣads and Bhagvadgītā. Vallabhacharya, the propounder of this school of religious thought, was born on the 11th day of the dark half of Cāitra 1535 V.E. (1479 A.D.) in the forest of Champāran near Raipur.¹ The political condition of the Northern India was then not very peaceful. At this moment the two great religious teachers Vallabhacharya and Srikrishna Chaitanya (the progenitor of the Vaiṣṇava Bhaktimārga in Bengal) preached the doctrine of Bhakti as enjoined by the Shastras in the Northern India, while Changadeva, Gnanadeva and Namdeva spread the same gospel in the South.

Vallabhacharya, with whom we are here concerned, took upon himself the task of working out a system of philosophy based on devotional love and having its root in the ancient sacred literature of India. He advocated Bhakti based on selfless devotion with non-dualistic theism (अद्वैतपूर्वक भक्ति). Against the Māya Vāda of Śaṅkara (monism with the doctrine of illusion) where the element of Bhakti is conspicuously absent, this system of 'Bhakti (reverential love to God) based on a divine path of service (सेवा) was at once more appealing to the layman. Vallabha's teachings spread fast in the provinces of the United

¹ *Vide* Introduction to *Anu Bhāṣya Prakāśa Rāśmi* Vol. III, 1st Pāda, by M. T. Telivala, B.A., LL.B. (A. IV. 9).

Provinces, Rajputana, Gujrat and Bombay. In course of time seven chief seats¹ were established at different places.

The fertile soil of Gujrat was found to be more propitious and congenial for the dissemination of the Puṣṭimārga. It strikes one with wonder that the Puṣṭimārga which had its early growth and nourishment in Adel (Dt. Allahabad) and Gokul (Dt. Muttra) in the U.P., became devoutly inclined to Gujrat losing its stronghold in the U.P. The reason is not far to seek. Narsī Mehta had already prepared the ground in Gujrat for the future uplift of Bhaktimārga even before Vallabha. At the time of Gosain Vitthal Nath one of his disciples, Gopaldas, wrote Vallabh-ākhyāna² in Gujrātī which gave such a great impetus to the Puṣṭimārga in Gujrat that it culminated in the major portion of Gujrat embracing the fold of the Mārga. The stronghold of the Puṣṭimārga on Gujrat will be apparent from the fact that in Gujrat the word Vaiṣṇava, having lost its broader significance, now ordinarily connotes 'a follower of the Puṣṭimārga.' Another reason for Gujrat becoming the chief centre of the Puṣṭimārga may be its vicinity to Śrī Nathji in Rajputana, after the transfer of the idol from Gokul in 1634 V.E. On account of these circumstances we find an enormous body of the Puṣṭimārgīya literature in the centres of Gujrat and Bombay.

Importance of the Mārga from the point of view of the Hindi Literature.—The wave of Krishna cult that pervaded all over Northern India during the medieval period of Indian History, has left a deep stamp on the religious and social conditions of the masses. The Puṣṭimārga of Vallabha also played a prominent rôle in that movement. The philosophical tenets and the doctrines of Bhakti expounded by

¹ *Vide* footnote A. II. 30.

² *Vide* A. II. 28 and A. III. 30.

Vallabhacharya had, from their very inception, been in close connection with the Krishnāite Literature of Hindi. Their philosophical sermons may have been forgotten but their essential ingredients in the form of divine love and ecstatic worship of Krishna continued to influence Hindi Literature for a long time, the effects of which can possibly be never shaken off. The religious revival associated with the Krishna cult of Puṣṭimārga had its main fountain-head in Hindi literature, specially in that of Braj Bhāṣā. The Puṣṭimārga has contributed such a great mass of literature to Hindi and its effects are so much engrained in it that without a proper study of Puṣṭimārga no critical survey of Hindi literature can reasonably be called correct, much less complete. Hence the necessity of investigation for the study of materials dealing with the Puṣṭimārga.

Comparative scarcity of the published literature and its causes.—A cursory glance over the materials connected with the movement reveals the fact that it has an enormous body of literature comprising a very extensive field. It is abundantly rich both in respect of its high philosophy as well as in its genuine literary merit, which stands as an explanation for the immense following of the sect. It is indeed a matter of great surprise that while, on the one hand, the philosophy of the Vedānta of Śaṅkara-charya received so much attention at the hands of Indian and foreign oriental scholars, the Shuddhādvaita Vedānta of Vallabhacharya, which had a great hold on the religious history of Medieval India, stands so utterly neglected by oriental scholars. The universal popularity of the Vedānta Philosophy is chiefly due to the huge literature published on it in Sanskrit, English and Indian vernaculars. But curiously enough there is not a single work in English which can afford a systematic recognition of the Puṣṭimārga, much less an exhaustive treatment to meet the demands of scholars. This neglect on the part of scholars may be accounted for

to the comparative scarcity of published literature on the sect. It is not uncommon that the priestly class in India, out of its sheer bigotry, persists in keeping its religious manuscripts unpublished lest their exposition might bring curse on it. This superstitious attitude prevails in the Puṣṭimārgīya Goswamis as in others. Under such hindrances and handicaps no Indian or foreign scholar could have devoted any attention to the Puṣṭimārga for the advancement of knowledge. While the religious literature pertaining to other systems of philosophy was being published and some of the Puṣṭimārgīya Goswamis were subjected to pernicious allegations,¹ the true adherents of the Path realised the importance of their literature being published in order to refute certain baseless charges levelled on the Mārga² through the degeneration of some of its priests. It is only during the last few decades that some well-meaning and enthusiastic scholars like Mr. M. T. Telivala of Bombay, Prof. Magan Lal Shastri of Broach, Prof. I. G. Shah of Ahmedabad and some others undertook the task of publishing some of the religious works of the Mārga thereby saving them from oblivion. But even the literature produced by them is not accessible to the general reader in this part of the country. Their published works are mostly to be found in Bombay and Gujrat.³

A General Survey of the Material.—The literature connected with the Puṣṭimārga is to be found mainly in the following four languages—Sanskrit, Hindi, Gujrati and English. Some of the famous writers are Vallabhacharya, Vitthal Nath, Gokul Nath, Hari Raiji, Purushottamji and

¹ *Vide* Judgment of the Bombay High Court in the notorious Maharaja Libel Case.

² *Vide* footnote in A. I. 7—22.

³ The present note on the 'Materials for the Study of the Puṣṭimārga' is based on my personal investigations carried on at Nathdwara, Kankaroli, Baroda, Broach, Ahmedabad and Bombay.

Girdharji. The major part of the Puṣṭimārgīya literature is in Sanskrit. This is being published gradually. The writings of Vallabhacharya and Vitthal Nath are particularly important. Vallabhacharya had tried to expound the system of philosophy by composing Aṇu Bhāṣya, Tatvadīpa Nibandha, Subodhinī, Śōḍaśa Grantha and other works. He is said to have written eighty-four works but only thirty-one are at present available. The basic foundation of his philosophy is Aṇu Bhāṣya, a commentary on Badarayana's Brahma Sūtras. It is the chief authority for the doctrines of Vallabhacharya. Vitthaleshwar, the son of Vallabhacharya, has also produced a philosophical treatise entitled Vidvanmandan which is of outstanding merit. The first learned commentary written on Aṇu Bhāṣya came from the pen of Purushottamji after about hundred years of the death of Vitthaleshwar. Probably during this intervening century, the period of interregnum as it were, no great attention was paid to the study of Aṇu Bhāṣya. In any case no commentary was written during this long interval. Purushottamji was a talented scholar of high learning. He displays his erudition in a critical and comparative exposition of the Aṇu Bhāṣya. Girdharji's Shuddhādvaita Mārtanda is also a fine treatise of great importance.

In Hindi we find quite a rich religious literature connected with the Mārga. This is in the form of Vārtās (short religious legends), Kīrtans (devotional lyrics), Vacan-āmṛtas (religious discourses) and Bhāvanā Granthas (literature flowing from religious emotion). The chief writers are Gokul Nath, Hari Rai and poets of the School of Aṣṭachāpa. Quite recently Pt. Rama Nath Shastri has attempted to produce some small philosophical tracts in modern Hindi but up till now no scholarly work has seen the light of the day. The explanation is to be found in the fact that the Puṣṭimārga, although originating in the Hindi-speaking area, had traversed to Gujrat under the patronage of

Gujratis. Therefore, no systematic work could be done in Hindi.

The Gujrati literature on the Mārga is, as compared to Hindi, more comprehensive and scholarly as it was chiefly in Gujrat where the Puṣṭimārga won its laurels. The chief Gujrati writers are Mr. M. T. Telivala, Prof. Magan Lal Shastri, Pt. Vasant Ram Shastri, Mr. P. Pran Vallabha Das and Mr. I. G. Shah. On the philosophical and historical aspects of the Mārga some valuable books have been published in the Gujrati language. Mr. I. G. Shah's translation of the Aṇu Bhāṣya in Gujrati is a good contribution to the philosophical side of the Mārga. The writings of the poets Gopaldas and Daya Ram are valuable additions to the devotional literature.

There is practically no Puṣṭimārgīya literature in English. Dr. R. G. Bhandarkar and some other scholars have given only short accounts of the Mārga which are often one-sided and apt to lead one to wrong conclusions.¹ Excepting a few tracts there is no such work in English as can convey a clear conception of the Mārga. Mr. M. T. Telivala had endeavoured to provide some coherent works in English but his life having been cut short the idea could not fructify.² Nevertheless the unceasing zeal and enthusiasm of Prof. I. G. Shah and Mr. D. N. Sankaliya in the publication of their religious writings in English is commendable.

The enormous body of the Puṣṭimārgīya literature can be grouped under three broad divisions according to its subject-matter, *viz.*, the philosophical literature, the Bhakti or devotional literature and the historical literature.

Literature on the Philosophical Aspect.—In order to formulate and expound their own systems of religious thought, the propounders of different schools of Upaniṣadic

¹ *Vide* A. IV. 6.

² *Vide* footnote A. IV. 9.

philosophy have written their respective commentaries on Brahma Sūtras, Upaniṣads and Gītā. Vallabha himself had tried to expound his system of philosophy by composing Aṇu Bhāṣya, Subodhinī, Tatvadīpa Nibandha, Śōḍaśa Grantha and other works. Leaving some of the Skandhas of Subodhinī, practically all the works of Vallabhacharya have been published. Subodhinī, however, is an incomplete work. Only the first, second, third, tenth and a portion of the eleventh Skandhas of the Bhāḡawat have been commented upon by Vallabhacharya in the Subodhinī. Aṇu Bhāṣya, the commentary on Brahma Sūtras, is complete but a portion of it is assigned to Vitthaleshwar.¹ Aṇu Bhāṣya has passed several recensions. The best edition of the Bhāṣya is one published by Mr. M. T. Telivala as it contains Purushottamji's commentary ('Prakāśa') along with Gopeshwarji's commentary ('Raśmi') and the text has been edited after a comparison of sixteen manuscripts.² Vallabhacharya did not write any commentary on the Bhagwadgītā; in any case his commentary on the Gītā is not available.

Looking at the Puṣṭimārga from the view-point of philosophy we find that the material is found mostly in Sanskrit. Vallabhacharya and Gosain Vitthal Nath expressed their philosophical doctrines through the medium of Sanskrit. This material is of a very high order as the whole edifice of the Mārga chiefly stands on this foundation. It may be remarked here that Vallabhacharya did not inherit any system of philosophy from Viṣṇuswamin for no work composed by Viṣṇuswamin has yet come to light. The traditional belief on which Dr. R. G. Bhandarkar has counted so much finds no historical support.³

¹ *Vide* A. III. 1, A. IV. 1, 8, 9.

² *Vide* A. I. 5, A. IV. 9.

³ *Vide* A. IV. 6

The other chief writers on the philosophical side are Gosain Vitthal Nath, Hari Raiji and Purushottamji. Their works have also been published. There are some small books¹ in Hindi and Gujrati which treat the philosophical aspects of the Mārga; even in English a few tracts may be found. No reliance can, however, be placed on this literature as it has often sketched only short outlines of the Mārga in a very light manner. For the study of the philosophy of the Mārga only the writings of Vallabhacharya should primarily be considered authoritative. To this end it goes without saying that a study of Aṇu Bhāṣya, Tatvadīpa Nibandha, Subodhinī, Śōḍaśa Grantha and other works by Vallabha, is an incumbency. We find that on the philosophical side we have ample material before us though it has to be utilised in the light of Bhāṣyas written by other Ācāryas than Vallabha. A literal translation of Aṇu Bhāṣya in English is badly needed.

Literature on Bhakti or the Devotional Aspect.—In some of his writings Vallabhacharya has discussed the nature and forms of Bhakti but he had no time to develop it. The system of worship at the time of Vallabhacharya was very simple. Curiously enough on this devotional side of the Mārga Vallabha did not care to write anything. The whole system of Sevāprakāra (mode of worship through divine service) had been organised by Gosain Vitthal Nath but even his Sevā Ślōkas are not revealed to us.

Vallabhacharya had entrusted Madhavendra Puri, a Tailang Brahman Sannyāsi of the Mādhva school, with the duty of worshipping Śrī Nathji² on the mount of Govardhan. Krishnadas, a Puṣṭimārgīya, became the Adhikārī. The mode of worship then initiated was of a very

¹ Vide A. II. 14, 15, 16, 21, A. III. 9, 10, 11, 12 and 15 and A. IV. 4, 5 and 7.

² The image of Śrī Nathji has been designated as Gopal in the works of Chaintanya writers.

simple character. Madhavendra Puri was the preceptor of Ishwarpuri, who had initiated Śrī Krishna Chaitanya to the fold of Krishna cult. Thus we find that from its very inception the image of Śrī Nathji had been worshipped both by the followers of Vallabha as well as by the Bengali followers of Gaud. From the above facts it can easily be inferred that Vallabhacharya and Krishna Chaitanya both had their common mission in the propagation of the doctrine of devotion without any dissensions existing between them. It was in the time of Gosain Vitthal Nath that the Gaudiya worshippers at the shrine of Śrī Nathji were shut out from the shrine and Śrī Nathji came in the exclusive possession of the Puṣṭimārgīyas.¹

It was left to Gosain Vitthal Nath to promulgate and develop an elaborate mode of rituals in the Sevā Mārga. The aesthetic elements were introduced and the finest arts developed in the Mogul times were employed in the daily worship of Śrī Nathji. Music, painting and other embellishments with all the paraphernalia associated with them came to be utilised in the worship of the deity with a consummate skill not known before. Hence it is in the works of Vitthal Nath that we find some prominence given to the devotional aspect of the Mārga. Bhakti Hansa, Bhakti Hetu Nirṇaya, Śrīṅārarasamaṇḍana are some of his works on this subject.

The subject, however, has been treated at great length in the religio-emotional literature (भावना ग्रन्थ) written in Braj Bhāṣā by Gokul Nathji, Hari Raiji and Dwarakeshji. The devotional literature of the Mārga is very widely scattered in the Kīrtana Saṅgrahas, Vacanāmṛtas, Vārtās, Baiṭhaka caritras, etc., written mainly in Braj Bhāṣā. Oral tradition must have been utilised in the Vārtās and they are not to be deemed strictly authentic from the historical point of view. On the kīrtana side also we find no scarcity of

¹ Vide Śrī Nathji kī Prakāṣya Vārtā. A II. 23.

material. It consists of Hindi lyrics composed by Puṣṭimārgīya Vaiṣṇava singers (कीर्त्तनिया), *viz.*, Surdas, Nanddas and numerous other bands of singers. The kīrtanas composed by Surdas, Nanddas and other poets of the Aṣṭachāpa are the impassioned expressions of the devotees. They are unrestrained outpourings of the heart. They are devotional lyrics breathing accents of genuine poetry.

These kīrtanas were sung before the deity in conformity with the different darśanas¹ (in keeping with the decorations of the image), festivals and ceremonies observed in the Mārga.² Their music was set in different tunes in harmony with time and season. The whole arrangement of these kīrtanas is so aesthetic and scientific that if we study them in the light of Bhāvanās (emotions) and particular times they are set in, they are sure to reveal much valuable and critical information. The religious thought of Surdas, Nanddas and other leading poets of the Krishnāite school in Hindi literature cannot be grasped properly unless it is studied in its Puṣṭimārgīya outlook. Indeed we have to see how far they are in consonance with the Bhakti of Vallabhacharya.

¹ There are eight darśanas (मंगला, ग्वाल, शृंगार, राजभोग, उत्थापन, भोग, संख्या-आरती, शयन) observed in the Puṣṭimārga. These darśanas connote the appearance of the deity before the devotees at eight different intervals during the day. According to different seasons some alterations are made in the arrangements.

² Generally all the kīrtanas of the Mārga set in different times have been printed and what is needed is the sorting out of the kīrtanas which are actually sung in the temple of Nathdwara according to the particular darśanas of the season. There is a manuscript copy with the Goswamiji of Nathdwara in which all the kīrtanas of the year according to different darśanas have been written most systematically. I could not get the privilege of seeing this copy.

The Bhāvanā works in Braj Bhāṣā are replete with the tender and delicate sentiments of the heart.¹ They have to be studied rather cautiously because they are expressions of pure love and emotion. They do comply with the fundamental principles of Bhakti but it is also possible that the Bhakti based on these Bhāvanās alone may have transgressed the original conception of Bhakti as preached by Vallabha. Surely, it would be illogical to make any systematic inference about Bhakti from these Bhāvanā works ; nevertheless they can throw valuable light on the evolution of Puṣṭi Bhakti. It may be remarked in passing that after Vallabhacharya it was mainly through these Kīrtanas, Vārtās, Vacanāmṛtas and Bhāvanās that the principles of the Mārga became known to the common people. Braj Bhāṣā became the *via media* for the dissemination of the tenets of the Mārga. The major position of Bhāvanā works are preserved in manuscripts and are still unpublished.

The writings of Daya Ram, Gopal Das and I. G. Shah written in Gujrati language also contribute to an elucidation of the Puṣṭi Bhakti. They have to be paid due attention. In English only some scattered gleanings of Puṣṭi Bhakti have been produced here and there. These do not give a correct idea of the Puṣṭi Bhakti.

Literature on the Historical Aspect.—Coming to the historical aspect of the Puṣṭimārga, we find that there are some reliable works in Sanskrit, viz., Murlidhar Dass Vallabha-

¹ It may be noted here that Vallabhacharya preached सेवा (service through love) distinct from उपासना (ordinary worship). Vallabha's form of सेवा is based on the भावना of Nand, Yaśōdā, Gopa and Gopīs where formalities (उपचार) are most subsidiary. Here we find that God passes His grace (अनुग्रह) on the soul and gives whatever he desires irrespective of Karma, Gnāna or Bhakti. nay He may even completely be enslaved by a soul and may play into its hands altogether. This is the basic principle of the Puṣṭimārga.

charya Caritam, Sampradāya Pradīpa, Vyas Rai Caritam, Vallabhīya Kalpadrumaḥ Kallol,¹ Vallabha Digvijayaḥ, etc., but some of these works are still unpublished. On this subject we have an extensive literature in Hindi. It is in the form of Vacanāmṛtas, Vārtās by Gokul Nath, Śrī Nathji ki Prākāṭya Vārtā and Vārtās pertaining to other deities, the genealogical table of the family of Vallabhacharya and some other works. Everywhere we find religion interwoven with a system of myths. The Puṣṭimārga and its propounder Vallabhacharya have several legends associated with them. These legends have to be separated very cautiously from true history behind them. We, however, do not find any connected historical account of the Mārga in Hindi.

In English the material to be availed of is Todd's Rajasthan, Imperial Farmans,² files of cases, some small tracts sketching the life of Vallabhacharya and books on the history of Vijayanagar about the Kanakābhiṣeka³ episode in the life of Vallabhacharya. In Todd's Rajasthan we find translations in English of different copper-plates granted to the Goswamis of Nathdwara bestowing on them rights and privileges in certain villages given in gift to Śrī Nathji under the suzerainty of the Udaipur Darbar.

The 'Imperial Farmans' consists of royal documents in Persian and Arabic characters granted to Gosain Vitthal Nath and his descendants, from time to time, by the different Mogul Emperors beginning from Akbar down to Shah Alam, in recognition of the gift of Gokul and Jatipurā, the two villages in the Muttra district, given to Vitthal Nath. Even Hamideh Banu Begum,⁴ the Queen-mother,

¹ I saw some disjointed leaves of Kallol at Kankaroli. It is considered to be an authoritative work on the historical aspect of the Puṣṭimārga.

² *Vide* A. IV. 11.

³ *Vide* footnote, A. I. 91.

⁴ She was the mother of Akbar.

had granted a Farman to Vitthaleshwar. The honour conferred by the Queen-mother is a rare instance in the Mogul history. This is ample proof of the great tolerant spirit of the Moguls and the high esteem in which Vitthaleshwar was held. These Farmans have been translated into English, Hindi and Gujrati with copious historical notes in English by Mr. K. Mohan Lal Jhaveri, the renowned historian of Bombay. They will furnish some new material to the history of the Puṣṭimārga specially of the Tilkāyat Maharajas. While they throw a welcome light on the tolerant spirit of the Mogul Emperors, they also give some valuable hints about the religious condition of India during the Mogul Period.

Much valuable work has been done on the historical side of the Puṣṭimārga in the Gujrati language. Some of the chief works in Gujrati are वल्लभ चरित्र, पुष्टिमार्गनो इतिहास, गोकुलनाथजीना जीवन चरित्र, कनकाभिषेकनो इतिहास, गोकुलनाथजीना हास्य प्रसंग, etc. The historical material, available in Sanskrit, Hindi and English connected with the Mārga, has been utilised in the above writings. It must, however, be remembered that in these works we sometimes find adulteration of the mystical beliefs invariably associated with religion.

Thus there is a huge body of material on the historical side of the Puṣṭimārga, but it has to be investigated and scrutinized with great care and caution. For proper valuation, a comparative method based on the scrutiny of contemporary sources has to be adopted.

Some historical material is preserved in the form of manuscripts and copper-plates which are still unpublished.

Conclusion.—To sum up, it may be remarked that the philosophical material of the Puṣṭimārga is confined chiefly to Sanskrit, while Hindi is rich in respect of the devotional and some historical literature. Gujrati is rich both in respect of philosophical as well as historical material. Some

historical and devotional literature embodied in manuscripts or copper-plates are still awaiting publication and have to be unearthed. The production of standard works in English and in Hindi is indeed a desideratum and that has to be done with a keen insight into the Puṣṭimārga and after full acquaintance of the extensive literature connected with the Mārga.

In the Appendices attached herewith an endeavour has been made to give short, introductory and sometimes critical notes on the published works on the Puṣṭimārga written in Sanskrit, Hindi, Gujrati or English. Where considered necessary, references about the authorities have been given in support of the remarks or arguments. Every care has been taken to give an impartial elucidation of the Puṣṭimārgīya literature which covers a vast field in four different languages.

APPENDICES

CONTENTS

APPENDIX I. Sāṃpradāyik Literature in Sanskrit.

- A. Original works or commentaries written by Vallabhacharya
- B. Works—original as well as commentaries written by the followers of Vallabhacharya.
 - (a) Commentaries on Vedic Literature.
 - (b) Literature connected with the Sūtras.
 - (c) Literature on Bhagwadgītā and Śrīmad-Bhāgawata.
 - (d) Other post-Vallabhacharya Works.

APPENDIX II. Sāṃpradāyik Literature in Hindi—Original as well as translations.

APPENDIX III. Sāṃpradāyik Literature in Gujrati.

APPENDIX IV. Literature for the Study of the Puṣṭīmārga in English.

APPENDICES

[NOTE—In the following appendices a chronological system has been followed in the beginning, *i.e.*, works by Vallabhāchārya and his immediate descendants Gopi Nath, Vitthal Nath and Gokul Nath have been treated first. After them the works have been generally graded according to their subject, matter, *e.g.*, philosophy, biography, history, 'Kīrtanas,' 'Sēvāprakāra,' etc. In the Hindi and the Gujrati section of the appendices the 'Vārtās' and the 'Vacanāmṛtas' by different Goswamis have been put at one place in order to provide the subject a connecting link. In the footnotes 'A' stands for 'Appendix' and the numbers refer to the corresponding sections of the Appendix concerned.—G. P. Tandon]

APPENDIX I

Sāmpradāyik Literature in Sanskrit :—

A. Original Works or Commentaries written by Vallabhacharya.

1. Tatva-dīpa-Nibandha¹.—By Vallabhacharya ; edited by Nand Kishore Ramesh Bhatt ; published by the Nirṇaya Sāgar Press, Bombay (1904). This independent work by Vallabhacharya is written in the Anuṣṭupa metre, is in three parts, viz., शास्त्रार्थ प्रकरण, सर्वनिर्णय प्रकरण and भागवतार्थ प्रकरण, and consists of Kārikās and their prose commentaries known as Prakāśa (प्रकाश). The first part deals with the real truth of the Śāstras, the second with the utility of the various religious works including Smṛitis, Purāṇas, Itihāsa and Kāvya and the last with the gist of the Bhāgawata. The Tatvadīpa Nibandha was published for the first time by the Nirṇaya Sāgar Press, Bombay. It was edited by Pt. Nand Kishoreji Ramesh Bhatt on behalf of Gobardhan Das Lakshmi Das Yaduvaṁśīya of Bombay (1904). This edition contains also its प्रकाश by Vallabhacharya. The प्रकाश on the fourth and fifth cantos of the third part was finished by Vitthaleshwar. This also has been incorporated in this edition. In the appendix is given a commentary, viz., सत्सनेहभाजन independently written by Pt. Gato Lalji. This commentary is published only up to a few introductory stanzas of the first part (शास्त्रार्थ प्रकरण).

We have a learned commentary on Nibandha called आवरणभंग from the pen of Purushottamji.

¹ *Vided* Remarks on Tatvadīpa Nibandha A. II. 1 and A. IV. 2.

The Nibandha with प्रकाश and Purushottamji's आवरणभंग was published with the first two parts only by Ratna Gopal Bhatt of Benares (1908).

The first two cantos of the third part of the Nibandha along with प्रकाश and Purushottamji's आवरणभंग were published in 1926 edited jointly by Mulchandra Tulsidas Telivala, B.A., LL.B., and Pt. Basant Ram Shastri.

Sri Kalyan Raiji, the father of Goswami Hari Raiji, has written a टिप्पणी on the Nibandha, a corresponding portion of which is partly incorporated in the appendix of the Bombay edition along with सत्सनेहभाजन.

Lalu Bhatt has written a योजना on the Nibandha which is still unpublished.¹

2. 'Mimāṃsādvaya Bhāṣyam'—*Vide* प्रकाश by Vallabhacharya on Kārikā No. 5, Tatvadīpa Nibandha. The प्रकाश runs thus—चकारान्मीमांसाद्वयभाष्यं प्रकीर्णानि भागवत-टीका च ग्रहीता, *i.e.*, the word “च” suggests the Bhāṣyas on the two Mimāṃsas, Prakīrṇāni and Bhāṣawata tikā. From this statement by Vallabhacharya himself it is clear that he had written one complete Bhāṣya on the Bramha Sūtra of Veda-Vyas and one complete Bhāṣya on the पूर्वमीमांसा of Jaimini. Out of the मीमांसाभाष्य only the भावार्थपादभाष्य, *i.e.*, the first pāda of the second chapter, with its विवरण by Yadunāthji, has been published by Mr. Magan Lal Shastri, M.A., of Broach.²

¹ The work left to be done in this direction is, therefore, a publication of the Bhagavatārtha Nibandha cantos III to XII with आवरणभंग upto cantos V and Purushottamji's योजना on the remaining seven cantos, Kalyan Raiji's टिप्पणी and lastly Lalu Bhattji's योजना.

² It is said that the second Bhāṣya, *viz.*, that on उत्तरमीमांसा, was completed by Vallabhacharya but it is wholly lost to us. The writer

3. 'Prakaraṇāni.'—*Vide* प्रकाश by Vallabhacharya on Kārikā No. 5, Tatvadīpa Nibandha.

This is a generic name given to the minor works written by Vallabhacharya. Even Purushottamji is silent on the explanation of this generic word. Puṣṭimārgīya scholars place under this head षोडश ग्रन्थ, etc., the minor works of Vallabhacharya.² All these works, with available glosses, have been published by Mr. Telivala, Harishankar Shastri and Chiman Lal Shastri.

4. 'Bhāgawataṭīkā.'—This was probably the सूक्ष्मटीका as Vallabhacharya himself remarks एतन्निबन्धकरणात् पूर्वमेव सूक्ष्मा या टीका कृता, etc., (भागवतार्थ प्रकरण तत्त्वदीपनिबन्ध). The remark means that Vallabhacharya had written a complete सूक्ष्म टीका on Śrīmadbhāgawat before he wrote the Nibandha on Bhāgawatārtha. If this view is correct the सूक्ष्म टीका has been lost. Only a portion of the first chapter was discovered

of Bhāvaprakāśikā, Sri Krishna Chandra Charan, says that in it he is giving only a summary of Śrīmad Bhāṣya. Possibly that वृत्तिकार may have had in his possession a copy of this Bhāṣya. This Bhāṣya is signified as बृहद्भाष्य because Pt. Gatoo Lalji has used this name for that Bhāṣya in Vallabha Vilas Part II. It is said that the so-called बृहद्भाष्य, a portion of which is published in the पुष्टिभक्तिसुधा magazine, Vol. V, No. 10, by Mr. Telivala, is not this original Bhāṣya but a compilation by a very recent Benares Pandit, Ram Krishna Bhatt (*vide* Introduction to भाष्यप्रकाशरत्न III. 4. p. 27), by M. T. Telivala, A. IV. 9, under the patronage of Sri Girdharji after there was no hope left for recovering the true बृहद्भाष्य. This compilation of the so-called बृहद्भाष्य consists only of a portion of the जिज्ञासाधिकरण the first Pāda of the third chapter and a dozen sūtras of the second Pāda of the third chapter. G.

¹ *Vide* Remarks on Ṣoḍaśa Grantha A. I. 7—22, A. II. 2, 3, 5 and A. III. 2.

² *Vide* English notes on Kārikā 5, Tatvadīpa Nibandha by I. G. Shah, M.A., A. IV. 2.

by Prof. Magan Lal Shastri and was published in the पुष्टिमर्गसुधा magazine. The सूक्ष्म टीका, unlike the Subōdhinī, was once complete.

5. Aṇu Bhāṣya¹.—By Vallabhacharya; edited by Ratna Gopal Bhatt; published by the Chaukhambha Sanskrit Series, Benares (1908). This is the famous commentary by Vallabhacharya on the Vēdānta Sūtras of Bādarāyana Vyās. Even before Vallabhacharya we find commentaries on the Vēdānta Sūtras by Śankaracharya, Ramanujacharya, Nimbark and Madhwacharya. Vallabhacharya was not satisfied with these commentaries and he considered his duty to revise the interpretations embodied in them in an independent commentary. This he did in the Aṇu Bhāṣya by expounding his own Śuddhādvaita system of philosophy.

The title Aṇu Bhāṣya is explained in two different ways by the Puṣṭimārgīya Vaiṣṇavas. According to one view Aṇu Bhāṣya (lit. small commentary) is nothing but a compendium of the Brīhad Bhāṣya by Vallabhacharya himself with a view that his teachings may be understood by ordinary people. Mr. Telivala has advanced arguments in support of this theory.² The other explanation proceeds on a scientific basis. It is argued that Vallabhacharya, following the usual practice of reputed writers, called his Bhāṣya 'Aṇu' so that it may serve as a keynote to the thoughts embodied in it. 'Aṇu' here stands with reference to the 'soul' which in the Śuddhādvaita system of philosophy is 'small' or 'atomic'. Thus the second view interprets Aṇu

¹ *Vide* A. III. 1, A. IV. 1, 8, 9.

² Introduction to Aṇu Bhāṣya Raśmi Adhyāya III, Pāda I, by M. T. Telivala, B.A., LL.B.

Bhāṣya as 'a commentary which sets forth the theory of the atomic nature of souls.'¹ Much can be said for and against both the interpretations put on the title of Aṇu Bhāṣya but it is not the proper place to discuss the question here. It may, however, be safely asserted that generally the first view finds favour with the Puṣṭimārgīya Vaiṣṇavas.

This Aṇu Bhāṣya is, of course, incomplete as Vallabhacharya condensed it as far as III. 2. 34, the remaining portion having been completed by Sri Vitthaleshwar. There is not the least doubt left regarding the double-authorship of this Aṇu Bhāṣya as the double-authorship is echoed from the times of Purushottamji, the earliest commentator on the Aṇu Bhāṣya. External and internal evidence can be given in support of this theory. But it is needless to discuss it here as it has already been tackled by different scholars, who have arrived at a unanimous conclusion.²

The Asiatic Society of Bengal employed Pt. Hem Chandra Vidya Ratna to edit the Aṇu Bhāṣya in Bibliotheca Indica Series for the first time. Its first fasciculus saw the light in 1888, second in 1891, third in 1895, fourth in 1896 and the fifth in 1897. This Bengal edition contained the text alone, पुष्टि was printed off as सुष्टि and the title page द्वैताद्वैत-परं व्याख्यानं

¹ Vide page 16, A Primer of Aṇu Bhāṣya (First Edition) by I. G. Shah, M.A., A. IV. 1.

² Vide Introduction to Aṇu Bhāṣya (in Sanskrit) by Sri Dhar Pathak, Bhatt Iccharam's Pradīpa on Aṇu Bhāṣya, Part I, p. 264, A Primer of Aṇu Bhāṣya, pages 17—23, First Edition, by I. G. Shah, M.A., and Editor's note to the भाष्य प्रकाशरणि, Adhyāya III, Pada III, by Mr. Telivala.

was entirely misleading.¹ Luckily, however, Ratna Gopal Bhatt's activities had already commenced in Benares and he set upon bringing out a complete edition of the *Aṇu Bhāṣya* along with Purushottamji's commentary (प्रकाश). This editor's name will never be forgotten because just after Pt. Ratna Gopal edited the *Aṇu Bhāṣya* with *Prakāśa* in fifteen fasciculi from 1903 to 1908, the unique nature of the 'Prakāśa' deservedly attracted the notice of the truth-seeking oriental scholars and since then *Aṇu Bhāṣya* and its author were given their proper place by the oriental scholars.

Purushottamji is a renowned author belonging to the Vallabha Sampradāya. His learned commentary on *Aṇu Bhāṣya* is very exhaustive and it is some times rightly said that without the aid of this commentary the study of *Bhāṣya* cannot be complete.

While Purushottamji's प्रकाश was being printed at Benares, Bhatt Iccharam's *Pradīpa* on *Aṇu Bhāṣya* was being published by Mr. Magan Lal Shastri at Bombay on behalf of the Vaiṣṇava Paṛiṣad. But only the first volume of *Aṇu Bhāṣya* with Iccharam's commentary could appear.

Prof. Magan Lal Shastri of Broach came across a copy of Girdharji's *Vivaraṇa* on *Aṇu Bhāṣya* and he requested the Bombay Government to publish *Aṇu Bhāṣya* with *Vivaraṇa* but the Government did not make any response.²

The superintending staff of the Bombay Sanskrit Series seemed to have expressed the opinion that

¹ The system of philosophy expounded by Vallabhacharya was and is always known as शुद्धाद्वैत.

² This fact was mentioned by Prof. Magan Lal Shastri in a private conversation with me in February, 1933.

the Aṇu Bhāṣya should be edited by a non-Vallabhacharyan, because a Vallabhacharyan scholar may not properly criticise the work. In consequence Mr. Sri Dhar Pathak Shastri was asked to edit the Aṇu Bhāṣya for the Bombay Sanskrit Series. It is in two volumes, the second consisting of the Pathak Shastri's own gloss compiled from various sources (1922). It is claimed to be a critical edition but Puṣṭimārgīya scholars do not agree with this view.¹ Girdharji's Vivaraṇa, therefore, is yet to be published with many other similar glosses on the Aṇu Bhāṣya. In 1921, Gokul Nathji of Barā Mandir, Bombay, published 'Trisūtrī' only along with five commentaries, *viz.*, Murlidhar's Prakāśa, Girdharji's Viyaraṇa, Vrajnath's Prabhā, Lalu Bhatt's Gūdhārtha Dipikā and Iccharam's Pradīpa.

Yōgī Gōpeshwarji's Raśmi is yet another famous commentary on the Aṇu Bhāṣya. Mr. Telivala's name will ever be remembered because of the publication of the Raśmi in 1926.² He brought out the first Pāda of the third chapter of the Aṇu Bhāṣya with Prakāśa and Gōpeshwarji's Raśmi, but within

¹ "In good many places the text is incorrect and unreliable. Even instances are there where Sūtrās are not correctly printed"—M. T. Telivala (*vide* Introduction to भाष्यप्रकाशरश्मि III. 1, p. 13).

² Mr. M. T. Telivala, B.A., LL.B., writes :—

"Generally we should have expected the Bombay Sanskrit Series to maintain a high standard, and we are disappointed to see that it is not maintained in this edition, in spite of the materials available to the learned Śāstri. The present attempt to publish the Aṇu Bhāṣya with Bhāṣya-Prakāśa together with the rare commentary रश्मि is undertaken under the following circumstances. In spite of four or five editions of Aṇu Bhāṣya we felt that the text of Aṇu Bhāṣya had not been done justice which was due to it."

(Introduction to Aṇu Bhāṣya Prakāśa Raśmi, Vol. III, 1st Pāda, p. 13 *vide* A. IV. 9).

a year he published out the second Pāda of the third chapter also. Unfortunately he died in 1927 but his work is being ably conducted by his friends Mr. D. V. Sankaliya and others at Bombay, who have already completed the fourth Pāda of the fourth chapter and are now bringing out the second chapter of which the first-half is out. This Bombay Edition of the *Aṇu Bhāṣya* is the best of its kind as it claims to be based on no less than sixteen manuscripts.¹

6. *Subōdhinī*.—By Vallabhacharya. This is a commentary on *Śrīmad Bhāgawata* from the pen of Vallabhacharya himself. It is, however, an incomplete work. Only the first, second, third, tenth and a portion of the eleventh Skandhas of the *Bhāgawat* have been commented upon by Vallabhacharya in the *Subōdhinī*. It is probable that Vallabha wrote on all the Skandhas.

The first Skandha was at first published with a Gujrati translation in a monthly *Puṣṭimārgaprakāśa* by the *Subōdhinī* Sabhā of Sri Nṛsiṅgh Lalji of Bombay. The same text was re-edited by Balabhadra Sharma at Bombay in 1915. The *Prakāśa* on the first Skandha was brought out in 1927 by Mr. M. T. Telivala on behalf of Gangadas Vrajdas Bharatia of Surat. The *Lēkha* (लेख) by Kākā Vallabhaji on the first and the other Skandhas awaits publication.

The second Skandha was brought out in 1920 by Balabhadra Sharma at Bombay. Its *Prakāśa*, however, was published by Goswami Braj Ratan Lal of Surat in 1932.

¹ *Vide* Introduction to *Aṇu Bhāṣya Prakāśa* Raśmi III, 1st Pāda, p. 15, by M. T. Telivala, *vide* A. IV. 9.

The third Skandha along with Purushottamji's Prakāśa in one volume was completely brought out by Nandkishore Sharma at Nathdwara (Mewar) in 1930.

As pointed out above, Subōdhinī commentary does not exist from the fourth Skandha to the ninth. Coming to the tenth Skandha we find that the first Prakaraṇa called the जन्मप्रकरण was at first edited and published in 1929 by Prof. Magan Lal Shastri, along with Vitthaleshwar's टिप्पणी, Purushottamji's प्रकाश, Vallabhaji's लेख, Lahu Bhatt's योजना and Nirbhaya Ram Bhatt's कारिका. The second or तामस-प्रकरण, is in four sections—प्रमाण, प्रमेय, साधन and फल. The फलप्रकरण of the Subōdhinī was edited by Vasant Ram Shastri at Ahmedabad in 1915 A.D. Mr. Telivala re-edited the same फलप्रकरण in 1924 but with लेख and several appendices. The text of the प्रमाण, प्रमेय and साधनप्रकरण was brought out by Prof. Magan Lal Shastri in 1928, 1931 and 1932 respectively. The प्रकाश on प्रमाण and प्रमेय Prakaraṇas was published by Prof. Magan Lal Shastri in 1932 and on फलप्रकरण by Mr. Telivala in 1922. The योजना on फलप्रकरण was published by Mr. Wadi Lal of Bombay. There is no प्रकाश on the साधनप्रकरण, लेख, योजना and कारिका, on the प्रमाण and प्रमेय and कारिका alone on the फलप्रकरण are yet to be published. The टिप्पणी of Vitthaleshwar on the tenth Skandha, Adhyāyas 1—32, was published by Mr. Telivala in 1931.

The third प्रकरण is called राजस्. It is, as before, in four section, viz., प्रमाण, प्रमेय, साधन and फल. The प्रमाणप्रकरण is yet to be published. प्रमेयप्रकरण, with all the literature connected with it, was edited by Mr. Telivala's friends in 1925 and printed at the Nirnaya Sāgar Press, Bombay. राजस् साधन, राजस-फल, सात्त्विक प्रमेय, सात्त्विक साधन and सात्त्विक फल Prakaraṇas have also

been edited by the same scholars and printed at the Nirṇaya Sāgar Press, Bombay. The last or धर्मप्रकरण in six Adhyāyas is yet to be published.

The Subōdhinī on the eleventh Skandha with all the literature connected with it was published by Prof. Shastri in 1933. On the twelfth Skandha there is no Subōdhinī.

- 7—22 षोडश ग्रन्थ¹ (7) यमुनाष्टकम् [1], (8) बालबोधः [2], (9) सिद्धान्त-मुक्तावलि [3], (10) पुष्टिप्रवाहमर्यादाभेद [4], (11) सिद्धान्त-रहस्य [5], (12) नवरात्र [6], (13) अंतःकरणप्रबोध [7], (14) विवेकधैर्याश्रय [8], (15) कृष्णाश्रय [9], (16) चतुःश्लोकी [10], (17) भक्तिवर्द्धिनी [11], (18) जलभेद [12], (19) पंचपद्य [13], (20) सन्यासनिर्णय [14], (21) निरोधलक्षण [15], (22) सेवाफल [16].—Works Nos. 7 to 22, which collectively known as Śōḍaśa Granthāḥ (षोडश ग्रन्थाः), have been published by several editors with or without commentaries.² These are independent writings by Vallabhachārya composed in the Anuṣṭupa metre. By the word प्रकरणानि, used by Vallabhachārya in his प्रकाश on the 5th Kārikā of the Tatvadīpa Nibandha, it is understood that Achāryaji himself referred to the Śōḍaśa Granthas along with his other minor works. The generic name Śōḍaśa Grantha is very popular among the Puṣṭimārgīya Vaiṣṇavas but it is very doubtful whether Vallabhachārya himself had assigned this general name to this group of his works. In the absence of any sound evidence forthcoming it can reasonably be assumed that some followers of Vallabhachārya may have grouped these sixteen minor works for the sake of convenience in daily worship and may have given a general name Śōḍaśa Grantha to it.

¹ Vide Remarks in A. I. 3; A. II. 2, 3, 5 and A. III. 2.

² All these sixteen works have been printed separately as well as in one volume.

The Śōḍaśa Granthas generally give in brief the essence of the philosophic and the aesthetic system propounded by Vallabhacharya. Some of the works incorporated in the Śōḍaśa Granthas are merely of a devotional character by which Puṣṭimārgīya Vaiṣṇavas are guided during their modes of worship or at the time of their initiation.

A special mention may be made of the 'Siddhāntarahasya'¹ (11) a little philosophical treatise incorporated in the Śōḍaśa Granthas. In the Kārikā No. 2 of this work we find a reference to the ब्रह्मसंबन्ध *i.e.*, the initiation ceremony in the Vallabha Sampradāya. By ब्रह्मसंबन्ध Acharyaji suggests the dedication of everything, which the soul may possess, at the feet of Lord Krishna² through

¹ In the notorious Maharaja Libel Case "this work with its commentary by Gokul Nathji was cited by the defendant to show that the religious tenets preached by Vallabhacharya and his grandson sanctioned immoral practices. This is the most perverted use made of the noblest of works. × × × It was unfortunate that all the materials available were not placed before the court. × × × General ignorance of the tenets of Vallabhacharya, and a desire not to give publicity to the works of the Sampradāya helped to create an atmosphere prejudicial to the reputation of the Sampradāya. To add to this, the life led by a few of the priestly class, suggested an inference against them. × × × By a perusal of the evidence led in the case against the Maharaja, we are driven to the conclusion that the verdict of the court as regards Vallabhacharya's teachings is entirely wrong."

(Introduction to Siddhanta Rahasya edited by M. T. Telivala, B.A., LL.B., and D. V. Sankaliya, B.A., LL. B., Bombay, p. 5.)

² "From Vallabhacharya down to the most recent commentator all the writers have understood that the समर्पण is to Purushottama or Krishna and not to any mortal being. In spite of these facts, it would be monstrous to substitute the word Acharya in place of Purushottama and then to draw the inference that Vallabhacharya and his Sampradāya looked upon immoral practices as sanctioned

Śrīmadācharya in order to attain oneness with God.¹

In short the Siddhānta Rahasya tells us that we can commune with God only through the delicate path of service based on love or devotion.

The best critical edition of the Siddhānta Rahasya along with eleven commentaries and a Gujrati translation has been published by M. T. Telivala, B.A., LL.B., Bombay, in the Nirṇaya Sāgar Press, Bombay. The editor's note and the introduction in English are well-balanced and critical and deserve serious attention from oriental scholars.

23. Patrāvalambana (पत्रावलंबन).—By Vallabhacharya ; published along with Purushottamji's Prakāśa and a Gujrati translation by Ranchor Das Brindaban Das, B.A., LL.B., Mukhya Kārbhari, Palanpur. This is one of the minor works by Vallabhacharya. In this work he discusses his views on पूर्व and उत्तर मीमांसा and lays down his principle of अद्वैतपूर्वक भक्ति—a combination of the pure monism of the Upaniṣads and the Bhaktimārga (the doctrine of reverential love to God).

by his teachings. Of course we are not in a position to deny that a certain section of the followers and some individuals of the priestly class had degenerated. Such degeneration comes at one time or another, in all religions. But to say that the followers or priests were degenerated is one thing and to conclude from their mischievous activities that Vallabhacharya or any of his learned followers preached or tolerated or sanctioned immoral practices is another thing. Vallabhacharya and his learned descendants have condemned immorality to this day in no uncertain terms." (*Vide* Introduction to Siddhānta Rahasya edited by M. T. Telivala and D. V. Sankaliya, Bombay, p. VII.)

¹ In the Prakāśa on Kārikā No. 2 Siddhānta Rahasya Gokulotsavaji observes :—ब्रह्मणः श्रीपुरुषोत्तमसम्बन्धिकरणात् सर्वसमर्पणेन तदीयत्वं संपादनात् ।

24. Śikshā Ślōka.—By Vallabhacharya; published in the Brhatstotra Sarit Sāgara Part II, Nirṇaya Sāgar Press, Bombay. This composition¹ consists of only three and a half verses composed by Vallabhacharya. In these ślōkas Vallabhacharya gives in brief the parting advice to his sons and Vaiṣṇavas in response to their request made at the Hanuman Ghat, Benares, when Vallabhacharya, after completing his mission of life, was going to plunge himself in the holy Ganges (जलसमाधि) in 1531 A.D.

25-31².—(25) Madhurāṣṭaka, (26) Nyāsādeśa, (27) Parivṛdhāṣṭaka, (28) Prēmāwṛta, (29) Purushottam Sahasranāma,³ (30) Trividha Nāmāvalī, (31) Sevā Falavivarāṇa.—By Vallabhacharya; printed in the Brhatstotra Sarit Sāgara Part II, Nirṇaya Sāgar Press, Bombay. Works Nos. 25—31 are small treatises by Vallabhacharya dealing with the general aspects of devotion to God and the importance of Sevāmārga (path of service). Some of these works, as their very name suggests, consist of hymns to be recited by the devotees during their worship.

¹ The complete Śikshā Ślōka consists of five verses, the three and a half verses having been written by Vallabhacharya on a stone with a chalk, the remaining one and a half verses, according to the Sāmpradāyik Gāthā, were completed by Lord Krishna himself who appeared in person at that last moment.

² The following works are also sometimes attributed to Vallabhacharya but some scholars of Puṣṭimārga do not consider them to be Vallabha's creation as none of these is commented by any follower of Vallabhacharya and as the thought and the language are un-Vallabhacharyan—नंदकुमाराष्टक, कृष्णाष्टक, गिरिराजधारी-अष्टक, गौपीजनवल्लभाष्टक, पंचश्लोकी and भगवत्प्रीतििका.

³ Vide A. III. 3.

B. Works—Original as well as Commentaries—written by the followers of Vallabhacharya.

(a) Commentaries on Vedic literature.¹

32.² Gāyatrī Bhāṣya.—Edited and published by Prof. Magan Lal Shastri, M.A., of Broach. This Bhāṣya is partly found verbatim in the Subōdhinī I. I. 1 and partly in the Anu Bhāṣya III. III. 37. Since the current Gāyatrī Bhāṣya has in it this portion of the Anu Bhāṣya, Mr. Telivala was inclined to attribute it to Vitthaleshwar,³ but Prof. Magan Lal Shastri, M.A., of Broach, has got a manuscript copy (which is now printed) of the Gāyatrī Bhāṣya where the colophon reads इति श्रीमद्वल्लभाचार्यविरचितं श्रीमद्गायत्रीभाष्यं संपूर्णम्. Śrī Gokuleshwar has written a gloss on it where also the colophon is इति श्रीमदाचार्यचरणकृत, etc. It may be noted that this Gāyatrī Bhāṣya is actually found in the hand-writing of Vitthaleshwar. Prof. Shastri's edition of the Gāyatrī Bhāṣya reads 'इति श्रीमद्विट्ठलेश्वर-दीक्षितानां हस्ताक्षरेषु लिखितान्येतानि पद्यानि गायत्र्यर्थोपनिबन्धनानि पूर्णानि.

33. Gāyatriyārtha Kārikāḥ.—These Kārikās were published in the Brhatstōtra Sarit Sāgar Part II, by Pt. Nandkishore Shastri along with the above Gāyatrī Bhāṣya and attributed to Vallabhacharya on the authority mentioned before. Purushottamji, however,

¹ If we were to classify works of Vallabhacharya Sampradāya into pre-Vallabhacharyan, Vallabhacharyan and post-Vallabhacharyan ones we may incidentally mention a few pre-Vallabhacharyan works of the Sampradāya to understand the connecting link.

² All the writings Nos. 32—36 have been incorporated in one volume entitled Gāyatrī Bhāṣya edited by Prof. Magan Lal Shastri, M.A., of Broach.

³ Vide remarks on Anu Bhāṣya A. I. 5, A. III. 1, A. IV. 1, 8, 9.

in his Vivaraṇa on this has attributed these Kārikās to Vitthaleshwar.¹

34. Gāyatriyārtha.—Under this name are found seventy-six Kārikās. The author's name is not certain as it is not given in the Kārikās but since these very Kārikās are found in the Prahasta by Purushottamji it is assumed that some follower of Purushottamji might have composed them.
35. Gāyatriyārtha Vivaraṇa.—This is written by Mathesh Indiresb Bhatt.
36. Gāyatriyārtha.—This is written by the late Pt. Gato Lalji of Bombay.
37. Māṇḍūkyaōpaniṣat with Gaudapādakārikā.—This Upaniṣat and the first two chapters of Gaudapādakārikās have been commented on by Sri Purushottamji and edited by Pt. Rama Nath Shastri, Baṛamandir, Bombay.
38. Śrī Nṛsinhōttaratāpinyupaniṣat.—This Upaniṣat along with a commentary by Purushottamji has been edited by Pt. Rama Nath Shastri, Baṛamandir, Bhuleshwar, Bombay.
39. Gōpālatāpinyupaniṣat.—This is commented on by Goswami Aniruddha Lalji and sub-commented on by his Shastri Hari Shankar, published by the Gujarati News Printing Press, Bombay.
40. Nārāyaṇōpaniṣat.—As above.
41. Brahmōpaniṣad Arthasaṅgraha.—This is a Dīpikā by Purushottamji published in Puṣṭi Bhakti Sudhā magazine.
42. Kaṭhōpaniṣad.—Pt. Gato Lalji has written a commentary on this Upaniṣad, published by Nand Kishore Shastri, Vidyā Vibhāga, Nathdwara.

¹ In the colophon of his Vivaraṇa Purushottamji writes विवरणं समाप्तं श्रीमत्प्रभुचरणकृतं (प्रभुचरण is the name of विठ्ठलेश्वर) गायत्र्याद्यर्थप्रकाश-कारिका.

43. Chāndōgyōpaniṣad (Chapter I).—This has been commented on by Pt. Rama Nath Shastri, Baramandir, Bhuleshwar, Bombay.
44. Īśōpaniṣad.—This Upaniṣad has been commented on by Pt. Mohan Lal Shastri of Nadiad.
45. Taittariyōpaniṣad Bhāṣya.—This is a commentary on the Taittariya Upaniṣad by Mathapati Jaya Gopal, a direct pupil of Gokuleshwar. This has been published from the Gatoō Lala kī Pathashala, Cathedral Street, Bhuleshwar, Bombay.
- (b) Literature connected with the Sūtras.
46. Jaimini Sūtras.—*Vide* remarks on Mīmāṃsādvayabhāṣya (A. I. 2) before.
47. Pūrvamīmāṃsākārikāḥ.—These appear to be the introductory portion of Vallabhacharya's Jaimini Bhāṣya. This work has been published with Purushottamji's gloss by Prof. Magan Lal Shastri in the Puṣṭi Bhakti Sudha Gujarātī monthly.
48. Brahma Sūtrāṇi.—*Vide* remarks on Mīmāṃsādvaya Bhāṣya (A. I. 2) and on Aṇu Bhāṣya (A. I. 5).
49. Śāṇḍilya Bhakti Sūtra.—These are commented on by one Murli Dhar Das¹ of Dakṣhiṇa Dwārikā called Hima Gōpal and published through Vasant Ram Shāstri with his Vernacular translation by the Vaiṣṇava Siddhānta Karyalaya, Ahmedabad.
50. Nārada Sūtra.—There is absolutely nothing on this in Puṣṭimārga.
51. Nārada Pañc'arātra.—A big Samhitā attributed to Nārada is completely lost to us. The current Nārada Pañc'arātra published by the Bengal Asiatic Society is not an authentic work. Verses

¹ This Murli Dhar Das has written several tracts like वल्लभाचार्य-चरितम् (A. I. 91) etc.. His works are said to be available in Tanjore.

from Nāradaṣaṇḍarātra are now and then quoted by Vallabhacharya, nay, while explaining the words भगवद्शास्त्रम् in the Prakāśa on the Kārikā भगवच्छास्त्रमाज्ञाय, etc. (Tatvadīpa Nibandha, I. 1. 3) Vallabhacharya writes 'भगवच्छास्त्रं, भागवतं गीतापञ्चरात्रं चेति. This shows that Vallabhacharya had a very high regard for the original Nāradaṣaṇḍarātra.

Śrīmadbhāgawad.—*Vide* the remarks on Tatvadīpa Nibandha, and Subōdhinī.

(c) Literature on Bhagwadgītā and Śrīmad Bhāgawad.

52. Gītātātparya.—Published by Rama Nath Shastri, Baramandir, Bhuleshwar, Bombay. This is a commentary on Gītā by Vitthaleshwar. This is simply an introduction and not an exhaustive commentary.
53. Nyāsādēsavivarana.—This little treatise by Vitthaleshwar mainly develops the idea of dedication contained in the famous verse of the Gītā 'सर्वधर्मान् परित्यज्य मामेकं शरणं ब्रज.' Purushottamji has commented on this treatise.
54. Gītātātpadīpikā.¹—Edited and published by Prof. Magan Lal Shastri, Broach. This is only a running commentary by Vallabhji, a descendant of Śrī Raghu Nathji of the fifth Gaddī.

¹ In the Prakāśa on Kārikā 'इत्याकलय्य सततं शास्त्रार्थस्सर्वनिर्णयः' (Tatvadīpa Nibandha I. 5) Vallabhacharya himself explains the word 'शास्त्रार्थ' as 'गीतार्थ' and it would, therefore, be quite reasonable to suggest that Vallabhacharya, like Yāmunācharya, gave the whole gist of Bhagwadgītā in the Śāstrārtha chapter of Tatvadīpa Nibandha from Vallabhji's Tatvadīpikā. One can also see that he was in possession of a few Gītākārikās by Vallabhacharya distinct from this Śāstrārtha chapter of the Nibandha. Vitthaleshwar also wrote a running commentary on Gītā (commentary on 21 verses has been found out), the discovered fragment of which has been incorporated in Prof. Shastri's edition of Tatvadīpikā.

55. Amṛtaraṅgiṇī.—Published by Ratna Gopal Bhatt, Gōpal Mandir, Benares. This is a commentary on Bhagwadgītā by Vrajrajji but it is sometimes wrongly attributed to Purushottamji, his nephew.
56. Bhāgawaddharmabodhiniṇī Tikā.—This is a gloss on Gītā published by Pt. Rama Nath Shastri, Baṛa-mandir, Bombay.
57. Gītā Rasikaranjinī Tikā (in manuscript form¹).—This is a commentary by Kalyan Bhatt, pupil of Gokulesh, author of Kallōl. This manuscript copy is yet to be published.
58. Śrīmadbhāgawad.—*Vide* remarks on Tatvadīpa Nibandha (A. I. 1) and on Subōdhiṇī (A. I. 6).
(d) Other post-Vallabhacharya works.
59. Sādhana Dīpikā².—The authorship of this work is attributed to Gopi Nath, elder brother of Vitthaleshwar. In the introduction to Aṇu Bhāṣya III. IV. p. 11, edited by Mr. Telivala, we find a reference to this book. It has been said there that a widow is to worship Krishna with Bāla Bhāva (worshipping the deity with the conception of a child) and that a woman whose husband is alive is to worship Krishna with Bhrātrī Bhāva (conception of a brother). It is important to note that we do not find any mention about a distinction in any of the writings of Vallabhacharya yet we can imagine that the above rule was based on common sense for the guidance of devotees.

¹ This manuscript is to be found with Prof. Magan Lal Shastri, M.A., of Broach.

² & ³ Gopi Nathji, the eldest son of Vallabhacharya, is credited to have composed only these two small works. We find a mention to these works in the Introduction to Aṇu Bhāṣya III. IV edited by M. T. Telivala, Bombay. This editor seems to have

Mr. Telivala says that 'beyond this there is not much in this work elucidating any other point of Vallabhacharya's philosophy.'

60. Sēvāpaddhati³.—This is a small work attributed to Gopi Nathji dealing with the Puṣṭimārgīya practices which are to be observed in the daily worship of the Deity. Perhaps it was this Sēvāpaddhati which supplied material to Vitthaleshwar to develop the Sēvāprakāra in a most gorgeous fashion, introducing therein a harmonious blendage of music, painting, etc.
61. Vidvānamāṇḍana¹.—By Vitthaleshwar; edited by Jagannath Shastri; published by Goswami Vallabhacharya, Vidyavibhaga, Kaman Bharatpur. This is one of the original works by Goswami Vitthala Nathji, also known as Vitthaleshwar. In this learned work Vitthaleshwar has expounded the doctrines of his father Vallabhacharya, in an elaborate manner. This work purports to deal with the nature of Brahma, whether it is निर्विशेष as understood by Śāṅkara, or सविशेष, or both, and the author takes up the disputed questions of the different systems

read these works in the manuscript forms, although he is silent on this point. In spite of my efforts I was unable to secure either printed copies of these works or any information about their being printed at all. My inevitable assumption, therefore, is that the works have not been published as yet.

¹ In the Introduction to Aṇu Bhāṣya III. IV. p. 4, Bombay Edition, Mr. Telivala observes :—

"After his return from Puri, Vitthaleshwar seems to have resided at Adel from Sambat 1616 Ashādh to the beginning of 1619. It was during this period that he composed his Vidvānamāṇḍana. × × × A manuscript dating from वैशाख शुद्ध १२ सं० १६१६ leads us to this inference. In any case we cannot assign any later date than this to the composition."

of Indian philosophy giving powerful arguments in support of the Śuddhādvaita doctrine (pure monism). The style too is very graceful.

In the latter portion of the Aṇu Bhāṣya we find quotations from Vidvānamaṇḍana, but in the Vidvānamaṇḍana itself the later Sūtras have not been referred to. This fact, therefore, suggests that Vitthaleshwar had completed his Vidvānamaṇḍana even before the completion of Aṇu Bhāṣya.

Vidvānamaṇḍana was at first edited by Ratna Gopal Bhatt, Gopalmandir, Benares, in 1905. Since the publication of this volume several editions of Vidvānamaṇḍana have been brought out at different places, with or without commentaries.

So far the best edition of Vidvānamaṇḍana is that of Jagannath Shastri. It is accompanied by four commentaries and has been published in two parts. The second volume contains a Hindi Niṣkarṣa (substance) also. In the Introduction, we find valuable details about the nature of the work and its various commentators.

- 62—65.—(62) Swāminyaṣṭaka, (63) Swāminīstōtra, (64) Kṛṣṇa Prēmāmṛta, (65) Vallabhāṣṭaka.—By Vitthaleshwar; printed in the Br̥hatstora Sarit Sāgar, part II, Nirṇaya Sāgar Press, Bombay. These are minor works in Stōtra form composed by Vitthaleshwar. It is said that Vitthaleshwar visited the temple of Jagannath in Puri in 1616 V.E. where he stayed for about six months. There he came in contact with the followers of Chaitanya. The Sāmpradāyik tradition also relates that during his early years Vitthaleshwar was influenced by Chaitanya. There is absolutely no internal evidence to support this theory but it is generally believed that the Stōtra-works of Vitthaleshwar have been written in such

a strain as are not quite in conformity with the original writings of Vallabhacharya.

In these Stōtras much prominence has been given to Radha, the eternal consort of Śrī Kṛṣṇa. She has been extolled most lavishly. In no writing of Vallabhacharya that has seen light do we find Radha extolled in such a strain. To what extent Vitthaleshwar retained this influence is difficult to be determined. The fact that he remembers only the Navanītapriya (नवनीतप्रिय) and Govardhandhar (गोवर्द्धनधर) Swarūpas in the conclusion of the Aṇu Bhāṣya leads us to the belief that in later times Vitthaleshwar had freed himself from the thoughts of Chaitanya school of Bhakti.¹

66. Śrīgārarasamaṇḍana.—By Vitthaleshwar; edited and published by M. T. Telivala, B.A., LL. B., Bombay, along with a Gujrati rendering in verses. This is a work by Vitthaleshwar composed in different metres and in a sweet, expressive and easy-flowing language. The work, as its name suggests, deals with the love of Radha and Kṛṣṇa. It describes the sports of the eternal consort Radha and Lord Kṛṣṇa, their enjoyment and amorous dealings. The work consists of three chapters, *viz.*, Rasa-Sarvasva, Dāna Līlā and Daśōllāsa. The verses of the Daśōllāsa have been set in different Rāga-rāginīs

¹ It was the time when Radha-Kṛṣṇa worship had spread practically all over Northern India. Hence it may be said that Vitthaleshwar was influenced more by the general current of the religious revival which pervaded the whole of the country during the 16th century than by Chaitanya singly. In the introduction to Aṇu Bhāṣya Prakāśa Raśmi III. IV Mr. Telivala suggests:—"It is possible that these Stōtras are due to Sarasvatī Samvāda and nothing else." This is, of course, one way of explaining away the theory. G.

(tunes of music) and are often sung before the deity in the shrine at Nathdwara.

The style, thought and language of this work are much in keeping with that of *Gīta Gōvinda* by Jayadeva¹ and it seems that Vitthaleshwar, being influenced by the Radha cult, was naturally attracted by the charm of *Gītā Gōvinda* and he also attempted to compose devotional lyrics in that strain. This influence, as has been observed before, did not last long.

- 67, 68. *Janmāṣṭamī Nirṇaya*, *Rāmanaumī Nirṇaya*.—These little works were probably composed by Vitthaleshwar when he was faced with controversies about the dates on which *Janmāṣṭamī* and *Rāmanaumī* fasts had to be observed.
69. *Sarvōttamastōtra*².—By Vitthaleshwar. This *Stōtra* along with commentaries by Gokul Nathji and Cācā Gopēshwarji, has been edited and published by Nandkishore Shastri, Vidyavibhāga, Nathdwara. In this little treatise Vitthaleshwar has extolled the virtues of Acharyaji, the propounder of Śudhādvaita doctrines.

¹ The following Dhrupada from *Śrīṅgararasamaṇḍana* may be quoted in support of my statement—

वसन्त रागेण गीयते
हरिरिह ब्रजयुवती शतसङ्गे ।

विलसति करिणीगणावृत वारणावर इव रतिपतिमान भङ्गे ॥१॥ ध्रु० ॥

विभ्रम संभ्रम लोल विलोचन सूचित सञ्चित भावम् ।

कापि दृगञ्चल कुवलयनिकरैरञ्चित तं कलरावम् ॥२॥

स्मित रुचि रुचिरतरानन कमलमुदीक्ष्य हरेरतिकन्दम् ।

चुम्बति कापि नितम्बवती करतलधृत चिबुकममन्दम् ॥३॥ etc.,

Śrīṅgararasamaṇḍana, Ullāsa I. 12.

² *Vide* A. II. 4.

70. *Bhakti Hansa*¹.—By Vitthaleshwar; edited by Balbhadra Sharma along with the commentaries of Raghu Nathji and Purushottamji; published by the Śuddhādvaita Siddhānta Kāryālaya, Bāramandir, Bombay. In this work Vitthaleshwar has explained the different aspects of Bhakti (reverential love to God) in Puṣṭimārga. The sublime ideal of unswerving devotion has been emphasised in this treatise in graceful and lucid prose.
71. *Bhaktihētunirṇaya*.—By Vitthaleshwar. This work together with a commentary by Raghu Nath Charan and a Gujrati translation has been edited by Chiman Lal Hari Shankar Shastri and Hari Krishna Vīrji Bhai Shastri, Puṣṭi Siddhānta Kāryālaya, Lal Baba Ka Mandir, Bhuleshwar, Bombay. This work by Vitthaleshwar deals with the genesis, *i.e.*, the root-cause of devotion. Why is it essential to cherish the noble ideal of devotion? Vitthaleshwar has elucidated this question in a logical manner. He says that the cause of Bhakti is only God's grace and that the Supreme Lord plays among His devotees out of love where Mantra, Tantra, etc., lose their effectiveness.
72. *Vivṛttiprakāśa*.—By Vitthaleshwar; published by Gtato Lal Pathshala, Cathedral Street, Bombay. In the course of his daily discourses on Subōdhinī,

¹ It is said that a devotee named Murari Pandit once requested Vitthaleshwar to write a work for him embodying the fundamental principles of Puṣṭimārga in order that he (Pandit) may silence his opponents on his side of the country and it was in response to this request that Vitthaleshwar wrote *Bhakti Hansa* and sent it to the Pandit. The Pandit was much pleased but he asked for a further explanation of the fundamental cause of Bhakti and it was then that *Bhakti Hētu* was written.

(This incident has been mentioned in the Introduction to *Aṇu Bhāṣya Prakāśa* Raśmi Vol. III, IV.) *Vide* A, IV, 9,

Vitthaleshwar used to write short marginal notes on difficult passages of the book. These brief notes were finally collected under the name of Vivṛtti-prakāśa.

73. Vijñapti.¹—By Vitthaleshwar; printed in the Brhat-stōtra Sarit Sāgar, part II, Nīrṇaya Sāgar Press, Bombay. This consists of prayers composed by Vitthaleshwar. In these hymns are reflected some of the noblest sentiments of devotion. They reveal the burning expressions of a devotee yearning most passionately to meet his Lord. The story runs that on account of some quarrel with Vitthaleshwar, Krishnadas Adhikari once prohibited the entry of Vitthaleshwar into the shrine of Śrī Nathji on Govardhan hill. Vitthaleshwar calmly submitted to this order and removed himself to Chandsarōvar at Parāsōti. It is said that it was during this period of exile that these Vijñaptis were composed.² Ultimately Krishnadas Adhikari came round and requested Vitthaleshwar to return to the temple. These Vijñaptis were not written in one sitting. That is why we find each verse standing by itself.

¹ *Vide* A. III. 5.

² About the origin of these Vijñaptis Mr. Telivala expresses his views in the Introduction to *Aṇu Bhāṣya Prakāśa Rāsmi* Vol. III, IV as follows:—

“Vitthaleshwar was a great letter-writer. He used to send and receive letters from a good many Vaiṣṇavas. These letters were in Sanskrit prose, but in the beginning and end of each letter a verse or two were written by Vitthaleshwar to remind his pupils of their sublime mission. In course of time, the uninteresting matter of the letters came to be neglected, but the verses were collected and preserved. This being the origin of these Vijñaptis, we can understand why these verses are unconnected.”

74. Bhāvaprakāśikā¹.—By Sri Krishna Chandra ; published in four parts by Mr. M. T. Telivala, Bombay. This work is attributed to Sri Krishna Chandra, the Guru of Purushottamji. In this work the writer has elucidated the Vyās-sūtras on the basis of Aṇu Bhāṣya. This work is even bigger than the Aṇu Bhāṣya itself. It summarises the Aṇu Bhāṣya and the Bhāṣya Prakāśa combined and supplies the connecting link of arguments which were unintelligible in the original Aṇu Bhāṣya. The passages of Śrutis and Smṛtis occurring in the Bhāṣya in brief have been quoted here fully and their connection in the Bhāṣya Prakāśa is also shown.
75. Vēdāntādhikaraṇamālā.—By Purushottamji; edited and published by M. T. Telival, B.A., LL.B., and D. V. Sankaliya, B.A., LL. B., Girgaon, Bombay. This is a small work by Purushottamji. After completing his Bhāṣya Prakāśa Purushottamji thought that it would prove rather a difficult work for the common people. For the convenience of the ordinary people he succinctly summarised the Adhikaraṇas and Sūtras of Badarayan in his Nyāyamālā.²
76. Prasthāna Ratnākara.—By Purushottamji; published by the Chaukhamba Sanskrit Series, Benares. In this work Purushottamji has explained in a masterly

¹ In the Introduction to Aṇu Bhāṣya Prakāśa Rāsmi Vol. III, IV. Mr. Telivala observes—"The last three अध्याय of this वृत्ति are with us, written in the hand of Sri Purushottamji and from the mode in which this manuscript is written, and from the remark on the last page 'इयं वृत्तिः गोस्वामि पुरखोक्तैः स्वगुरुनाम्ना कृता इति श्रुतम्,' we are tempted to attribute the authorship of this work to Sri Purushottamji himself. At least the final form of this वृत्ति was undoubtedly given by Sri Purushottamji."

² Vide Vēdāntādhikaraṇamālā, chapter I, verse No. 2 which runs thus—भाष्यप्रकाशे विस्तीर्णोर्थोवगन्तुं न शक्यते । सर्वैस्तोर्थं संगृह्य न्यायमाला वितन्त्यते ।

way the Śuddhādvaita system of philosophy. The disputed subjects such as Brahma, Māyā (illusion) and Jīva have been taken up by the learned writer in an argumentative as well as explanatory style.

77. Utsavapratāna.—By Purushottamji ; published by Nand Kishore Shastri, Vidyavibhaga, Nathdwara. In this work Purushottamji deals with the festivals to be observed by the Vaiṣṇavas. Purushottamji lays down the rules and his verdict on them about the time and dates on which the different festivals such as Janmāṣṭamī, Dīpāvalī, etc., are to be observed by the Puṣṭimārgīya Vaiṣṇavas.
78. Avatāravādāvalīh.—By Purushottamji ; published in two parts by Vasant Ram Shastri, Śuddhādvaita Karyalaya, Ahmedabad. This is a work by Purushottamji in which he has advanced powerful arguments in support of the Avatāravāda (the doctrine of theism). This work has been written in a very argumentative style suited to disputations (Śāstrārtha). The Puṣṭimārgīya outlook on Avatāravāda has been explained in this valuable treatise.
79. Vādāvalīh.—Edited and published by Rama Nath Shastri, Baramandir, Bhuleshwar, Bombay. This is a collection of works written on different Vādas (theories) such as Pratibimbavāda, Andhakāravāda, Mūrtipūjanvāda, etc., by Purushottamji, Giridharji, Gopeshwarji and other Puṣṭimārgīya writers. These disputed theories have been examined from the view point of Śuddhādvaita system of philosophy. The book examines 17 Vādas¹ only.
80. Śuddhādvaita Mārtanda².—By G. Girdharji ; at first published by Ratna Gopal Bhatt, Benares, along with a commentary by Ram Krishna Bhatt.

² Vide A. I. 88, A. II. 5, A. IV. 3

¹ १. भेदाभेदस्वरूपनिर्णयः

२. भगवत्प्रतिकृतिपूजनवादः

This is a work by Goswami Girdharji Maharaj of Benares. It consists of 95 verses. In this little work the writer gives in a nutshell the main doctrines of the Śuddhādvaita system of philosophy (non-dualism of pure entities) as preached by Vallabhacharya. The writer examines in a cursory way the systems of philosophy preached by Śaṅkara, Ramanuja, Nimbārka, Mādhava and the Shāktās and puts them to a critical test by exploding their respective theories. In the end the writer answers the various complex problems relating to Brahma, Jīva (soul) and Jada (universe) from the standpoint of Pure Monism, and for the attainment of Brahma he lays emphasis on Nirguṇa Bhakti Mārga of Vallabhacharya where there is no bondage of nescience.

Yet, another and better edition of this work has been published from the Subodhinī Sabhā, Bombay, under the patronage of Nṛsiṅgh Lalji. This edition contains a Gujrati translation also by Shastri Chaggan Lal Amarji along with the commentary of Ram Krishna Bhatt.

81. Śruti Rahasya.—By Girdharji; along with a commentary by Ram Krishna Bhatt and a Gujrati translation by M. T. Telivala. It has been edited and published by M. T. Telivala, B.A., LL.B., Vakil High Court, C. P. Tank, Bombay. This is a work by Girdharji. It has been commented upon by Ram Krishna Bhatt.

- | | |
|------------------------------|-----------------------------|
| ३. सृष्टिभेदवादः | ११. खलालपनविश्वसवादः |
| ४. ख्यातिवादः | १२. नामवादः |
| ५. अय्यकारवादः | १३. सृष्टिपूजनवादः |
| ६. ब्राह्मणत्वादि देवतावादः | १४. ऊर्ध्वपुण्ड्रधारणवादः |
| ७. जीवप्रतिबिम्बत्वलक्षणवादः | १५. शङ्खचक्रधारणवादः |
| ८. आविर्भावतिरोभाववादः | १६. मालाधारणवादः |
| ९. प्रतिबिम्बवादः | १७. उपदेशविषयशङ्कानिरासवादः |
| १०. भक्त्युत्कर्षवादः | |

This little work purports to deal with the teachings embodied in the Śrutis. The author also extols the virtues of Maha Prabhu Vallabhacharyaji and lays down as a principle that for the attainment of Sāyujya Moksha (emancipation in which the soul's individuality is not absorbed into Brahma) it is essential to practise devotion as taught by Vallabhacharya.

82. *Brahmavāda saṅgrahaḥ*.—Published by the Chaukhambha Sanskrit Series, Benares, in 1928. This is a collection of three works *Brahmavāda* by Hari Raiji, *Brahmavāda* by Vraja Raiji and *Śuddhādvaita Pariṣkāra* by Ram Krishna Bhatt. It has been edited by Hari Shanker Shastri along with his Hindi translation on both the *Brahmavādas* together with the respective commentaries on Hari Raiji's *Brahmavāda* by Gopal Krishna Bhatt and on *Śuddhāvaita pariṣkāra* by Raghu Nath Shastri.

In this volume the writers have discussed philosophical questions such as the conception of Bhakti, the relation of Brahma with the soul and the universe, etc. After examining other systems of philosophy the authors of this work have expounded the doctrines of Puṣṭimārga.

83. *Nirṇayārṇava*.—By Lalu Bhatt; edited and published by Bhatt Balbhadra Sharma, Baramandir, Bhuleshwar, Bombay. In this little treatise the writer has explained some philosophical and devotional principles of the Puṣṭimārga on the strength of different writings composed by Vallabhacharya and Vitthaleshwar.
84. *Sēvākaumudī*.—By Lalu Bhatt; along with a Hindi translation the book has been published by Rama Nath Sharma, Baramandir, Bhuleshwar, Bombay. This is a little treatise by Lalu Bhatt. It consists

of two chapters. In the first chapter Lalu Bhatt has explained the nine modes of worship (नवधामक्ति) on the authority of Bhagwadgītā, Bhāḡawata and Tatvadīpa Nibandha, etc. More emphasis has been laid on the Sēvāmārga (path of service), specially that of the Buṣṭimārgīyas and it has been held that the modes of worship (सेवापद्धति) followed in the Buṣṭimārga are derived from the Bhāḡawata. The second chapter deals with the nature of Brahma and after discussing it in a philosophical way the writer concludes that Śrīkr̥ṣṇa is the only Omnipotent Brahma to be worshipped by devotees in the manner stated in the first chapter of the book. The style of the author is very lucid and logical and his remarks are always supported by convincing authorities.

85. Adhikaraṇasaṅgraha.—By Nirbhaya Ram Bhatt; published by Vasant Ram Shastri, Vaiṣṇava Paṛiṣad, C. P. Tank, Bombay. This is a treatise by Nirbhaya Ram Bhatt, a pupil of Lalu Bhatt. In this book the writer has explained in a very simple manner each Adhikaraṇa of the Brahma Sūtras according to Aṇu Bhāṣya. It gives only a gist of the Adhikaraṇas.
86. Satsiddhāntamārtanḍa.—By Gatoo Lalji; published by Jivanji Maharaj in the Gaṇapati Krishnaji Press, Bombay. This is a philosophical work by the late Pt. Gatoo Lalji of Bombay. It was written in reply to the sixty-four questions embodying attacks on Puṣṭimārga by a certain दंडिन (ascetic) of Jaipur. The learned writer has interpreted the doctrines of the Śuddhādvaita Brahmavāda after entering into debatable questions as interpreted by other schools of philosophy. His style of writing is very argumentative and vigorous and is suited to theological disputes.

87. *Vedānta C'intāmaṇi*.—By Gatoo Lalji; published by Rama Nath Shastri with short notes from Bara-mandir, Bhuleshwar, Bombay. This is also a philosophical treatise composed by Gatoo Lalji. The book falls into fifteen chapters. After examining critically the different systems of philosophy, *viz.*, Māyāvāda, Atheism, Śākta, Dualism, etc., the writer has advanced arguments in support of the Śuddhādvaita system preached by Vallabhacharya.
88. *Prābhāñjan-māruta Śakti*.—By Gatoo Lalji; published by Gatoo Lalji ki Pathshala, Cathedral Street, Bhuleshwar, Bombay. The original work is *Prābhāñjan* written by Vitthal Nathji (other than the famous Vitthaleshwar) and *Māruta Śakti* is a commentary on the first part of the work by Gatoo Lalji. The *Prābhāñjan* had been written with the object of refuting a work entitled *Sahastrāksha* written by a certain ascetic (Daṇḍi) in 1922¹ V.E. The work *Sahastrāksha* had levelled an attack on the Śuddhādvaita system of philosophy by severely criticising Śuddhādvaitamārtanḍa² and Vidvānamāṇḍana³, the two works of great importance in the Puṣṭimārga. It is said that the introduction of the *Sahastrāksha* was written by a certain Kshattriya named Mathuradas. The *Prābhāñjan* purports to reduce to pieces the arguments of the *Sahastrāksha* word by word. The style of such theological disputations is apt to be vigorous and at times violent. This we witness in *Prābhāñjan* also. Nevertheless, the work will be found useful for a

¹ 'सहस्रनामाभिधो ग्रन्थः संपूर्णः कार्तिकेऽभवत् ।

² २ २ ९ १
वर्षे नेत्रान्नन्देन्दौ विक्रमस्य महौजसः ॥ (सहस्रनामः)

² *Vide* A. I. 80 A. II. 5, A. IV. 3.

³ „ A. I. 61.

study of the Śuddhādvaita philosophy. The commentary Māruta Śakti is a very learned and exhaustive one.

89. Siddhānta Siddhāpagā.—By Balbhadrā Sharma ; published by the Śuddhādvaita Siddhānta Karyalaya, Baramandir, Bhuleshwar, Bombay. This is a small philosophical treatise on Puṣṭimārga. The writer is Balbhadrā Sharma. Only some aspects of Śuddhādvaita philosophy have been discussed in this booklet.
90. Prhatstōtra Sarit Sāgar Part II.—Published from the Nirṇaya Sāgar Press, Bombay. This is a collection of the Stōtras composed by different Puṣṭimārgīya writers. The Stōtras are the minor works panegyricizing the virtues of the deity in most glorious terms. In this volume we find the Stōtras composed by Vallabhacharya, Vitthaleshwar, Hari Raiji and others. The minor works of Hari Raiji incorporated in this book will be found very useful for a study of the devotional aspect in the Puṣṭimārga. They embody not only certain injunctions to be observed by the Vaiṣṇavas but also sacred precepts to serve as a guide to the devotional path of service.
91. Śrīmad Vallabhāchārya C'aritam¹.—By Murli Dhar Das ; published by Vadi Lal Nagindas Shah, B.A., LL.B., Princess Street, Bombay. This is a short biographical sketch of the life of Vallabhacharya written by Murli Dhar Das. Only a few events of the life of Acharyaji have been narrated in this booklet. We find in it a passing reference to the Kanakābhiśēka² incident but the name Vyas Tirtha

¹ Vide A. I. 92, 93, 94 and A. III. 15, 24, 25, A. II. 21, 22, A. IV. 10.

² The 'Kanakābhiśēka' incident has been mentioned in all the available works on the life of Vallabhacharya. This ceremony was performed by Krishna Deva Raya, the ruler of the powerful

does not occur here. In fact the writer does not treat the matter in a historical way as we do not find

Hindu Kingdom of Vidya Nagar or Vijayanagar. During his time a convention was held of the representatives of the different systems of philosophy under the presidentship of Vyas Tirtha, the then Acharya of the Mādhva Sampradāya. The session was already in progress when Vallabhacharya visited Vijayanagar. The controversial debate seems to have centred round the nature of Brahma between Vidya Tirtha, a Māyāvādi and Vyas Tirtha a Mādhva. It is said that the dualistic philosophy of the Mādhvas could not stand long against the cudgels of Māyāvādins. At this critical moment Vallabha took up the charge boldly and by his profound learning and powerful arguments he baffled not only the Māyāvādins but also the Naiyyāyikas and representatives of other schools of philosophy. Vallabha's theory was altogether a new thing. He accepted the advaita of Śaṅkara, thus disarming the force of arguments put forth by Mādhvas and others and took up his stand on अद्वैतपूर्वक भक्ति which, although a new theory, totally snatched away the weight of arguments of both, the Māyāvādins and the other schools of Vaiṣṇavas. Thus Vallabha attained supremacy in the theological convention held by Krishna Raya. All the Acharyas and the Pandits were so deeply impressed by the great learning of Vallabhacharya that in order to commemorate this victory King Krishna Deva Raya performed a Kanakābhiśēka ceremony in respect of Vallabhacharya with hundred maunds of gold. It is said that Vallabha did not accept these gold coins and advised the king to distribute them amongst the Pandits. From this time Vallabha came to be regarded as an Acharya. It is also said that Vyas Tirtha, in admiration to Vallabha, had offered his gaddi (seat) to Vallabha but the latter refused to accept it.

There seems no reason to doubt the facts mentioned above. The following references may, however, be given :—

1. Vyās-yogi-Caritam.—Written in the 16th century by Som Nath, a devout follower of Vyas Tirtha, published by Vyas Rai Matha, Mysore.
2. Srimad Vallabhacharya Caritam by Sri Pada Shastri (A. I. 92).
3. Life of Vallabhacharya by N. G. Shah, B.A. (A. IV. 10).
4. Vacanāmṛta and Vārtā by Gokul Nath (A. II. 6, 7, 8, 9, 10, 11, 12, 13 and A. III. 78).

in it any mention of the dates or years. Tradition¹ interwoven with supernatural revelations finds favour with the author of the book. Yet, if studied with caution, the historians may gather some material from it as the writer belongs to the period of Viṭthaleshwar.

92. Śrīmad Vallabhāchārya Caritam²—Written and published by Sri Pāda Shastri, Imli Bazar No. 30, Indore City. This is a recent work written by Sri Pāda Shastri of Indore. In a very systematic way the writer has tried to describe the various events of the life of Vallabhacharya. Along with an introduction and an appendix the book falls into fourteen chapters, each taking up in detail one or the other aspect of Vallabha's life. The writer has also given an early account of the family in which Vallabhacharya was born. A connection of Vallabhacharya has been traced to the line of Viṣṇu Swāmin and Vilvāmal, and it has been laid down that Vallabhacharya's mission was only to revive the system of philosophy once preached by Viṣṇu Swāmin. The theory that Viṣṇu Swāmin was in any way connected with the Vallabha Sampradāya is much disputed by the Puṣṭimārgīya scholars. So we have to examine the writer's views rather cautiously. Although the book has not been written in a modern

5. Vallabha Carit by Lalu Bhai Pran Vallabhadas Shah.

6. Kanakābhiśēkanētiḥāsa by V. H. Shastri (A. III. 25).

7. 'An Historical Incident'—An article by I. G. Shah, M. A., in the 'Shuddhadwaita' magazine Vol. 3, No. 2.

8. Madras Epigraphical Report for 1922-23, para 84.

9. Vallabha Digavijayam by Yadu Nathji. (A. I. 93), etc.

¹ तत्पितृश्ररितं दिव्यं वर्णयामि यथाश्रुतम्, Benedictory verse, Vallabhacharya Caritam.

² Vide A. I. 91., 93, 94, A. II. 24, 22, A. III. 15, 24, 25, A. IV. 10.

scientific fashion yet we find some order in it. Mystical beliefs of devotees are sometimes intermingled with historical events, which have to be weighed on correct historical testimony.

93. Vallabhadigavijaya¹.—By G. Yadu Nathji ; published by Nand Kishore Shastri, Vidyavibhaga, Nathdwara, along with a Hindi translation by Purushottam Sharma Chaturvedi. This is also a sketch of the life of Vallabhacharya written by Goswami Yadu Nathji in 1658² V. E. In this treatise the writer has chronicled the events of the different tours conducted by Vallabhacharya in order to attain victory over all the directions and to initiate pupils in his own Sampradāya. These tours have been described in their fullest details. An account of Vallabhacharya's lineage, a detailed description of the ceremony of Kanakābhiśeka and a mention of days, dates or years of certain historical facts are the chief characteristics of this work. The connection of Puṣṭimārga with Viṣṇu Swāmin and Vilva-mangal has been maintained in this book. Although, as before, here also we find mystical beliefs and miraculous events associated with Vallabhacharya, yet much valuable historical material can be gathered from this book. Most of the recent works depicting the life of Vallabhacharya seem to have been based on this treatise.
94. Vallabhīya Kalpadrumaḥ³.—By Saryudas ; published by the Jagdishwar Press, Bombay, in 1942 V. E.

¹ Vide A. I. 91, 92, 94, A. II. 51, 22, A. III. 15, 24, 25 and A. IV. 10.

² वसुवागारसेन्द्रभट्टे तपस्य सितके रवौ ।

चमत्कारिपुरे पूर्णौ ग्रन्थोऽभूत् सोमजा तदे ॥ Colophon in (वल्लभदिग्विजयम्)

³ Vide A. I. 91, 92, 93, A. II. 21, 22, A. III. 15, 24, 25 and A. IV. 10.

This is a life of Vallabhacharya written by Saryudas. The chief events of Acharyaji's life have been narrated but no attempt has been made to record them in a strictly historical fashion. The writer seems to be more attracted by miracles than by facts seen in their true perspective.

95. Vallabhastutiratnāvaliḥ—By Gokulādhīshji; published, along with a learned commentary by Gatoo Lalji himself, from Gatoo Lala ki Pathshala, Cathedral Street, Bombay. This is a panegyric composed by Gokulādhīshji. It purports to extol the virtues of Vallabhacharya. It is mainly an outflow of the heart of a devotee nursing unflinching faith in his preceptor.
96. Puṣṭimārgīya Ācharya Paramparā Nirṇayaḥ.—Written and published by Chagan Lal Shastri in the Mathura Printing Press, Mathura (1948 V.E.). In this work Chagan Lal Shastri has attempted to trace back the line of Acharyas beginning from Viṣṇu Swāmin to Vallabhacharya. It is often remarked that the system of philosophy preached by Vallabhacharya is comparatively of a much later growth when compared with the other systems of philosophy such as Nimbārka, Śaṅkara, etc., who claim their foundation several centuries before the school of Vallabha. It was perhaps with the object of obliterating this criticism that the present work seems to have been written. We have no historical records to establish a direct connection of Viṣṇu Swāmin with Vallabhacharya but tradition has somehow or other come to associate the name of Viṣṇu Swāmin with Vallabha Sampradāya. This question has to be studied rather carefully on the basis of philosophical views and historical records.

APPENDIX II

Sāṃpradāyik Literature in Hindi—original as well as translations:—

1. Saprakāśatatvadīpa¹ Nibandha, Vols. I and II—By Vallabhacharya; published with Purushottamji's 'Āvaraṇabhaṅga' commentary in Sanskrit and a translation thereon in Braj Bhāṣā by Jivan Lalji from the Vitthal Nath Pathshala, Kotah (1904). Only the first two Prakaraṇas of the Tatvadīpa Nibandha, viz., the Śāstrārtha and the Sarvanirṇaya have been printed and translated in this edition. The Braj Bhāṣā translation is easy to follow and quite satisfactory, although its language is defective at certain places.
2. Śōḍaśa Grantha².—By Vallabhacharya; translated into Braj Bhāṣā by Rama Nath Shastri and published by him from the Barāmandir, Bhuleshwar, Bombay (1923). This annotated edition gives a literal translation of each verse along with its prose-order. The language is quite simple and easily intelligible. In the introduction the annotator has given a summary of each of the sixteen works contained in the Śōḍaśa Grantha in refined Braj Bhāṣā prose. The introduction sketches, in a nutshell, an outline of the Śōḍaśa Grantha.
3. Siddhānta Rahasya Vivṛti³.—By Rama Nath Shastri; published by the Puṣṭimārgīya Siddhānta Kāryālaya, Bara Mandir, Bombay (1984 V.E.). This is a

¹ *Vide* remarks on Tatvadīpa Nibandha A. I. 1 and A. IV. 2.

² *Vide* remarks on Śōḍaśa Grantha A. I. 3, 7—22, A. II. 3, 5, and A. III. 2.

³ *Vide* remarks on 'Siddhānta Rahasya' in A. I. 7—22.

commentary in Braj Bhāṣā prose by Rama Nath Shastri on the 'vivṛti' (a commentary), composed in Sanskrit by Hari Raiji on the Siddhānta Rahasya of Vallabhacharya. Besides the learned commentary we also find the prose-order of each verse along with a literal translation of the same. In the introduction of this book the commentator has given a very brief account of Hari Raiji's life and his works, and he has further reviewed Hari Raiji's commentary on Siddhānta Rahasya in the course of which a discussion has been entered into on the significance of the technical expressions Brahma-Sambandha (affiliation of the soul to God) and Kṛṣṇa-Sambandha.

4. Śrī Sarvōttam Stōtram ¹.—By Vitthaleshwar, adopted in Braj Bhāṣā prose according to the commentary on Sarvōttam Stōtra by Gokuleshji; published by Nand Kishore Shastri, Vidyavibhag, Nathdwara, 1980 V.E. This edition contains a detailed and lucid commentary in simple Braj Bhāṣā.
5. Navaratnam and Śuddhādvaita Mārtanḍaḥ ².—Published by Nand Kishore Shastri, Vidyavibhaga, Nathdwara, 1974 V.E. Navaratna is a work by Vallabhacharya and Śuddhādvaita Mārtanḍa a work by Giridharji. Both these works have been incorporated in this edition with short notes and a gloss in Hindi by Chaturvedi Purushottam Sharma. The commentary is not an exhaustive one and the defective language sometimes makes the subject-matter unintelligible and jumbled up. Yet it will furnish an interesting reading to a general reader.

¹ *Vide* remarks on Sarvōttam Stōtra A. I. 69.

² *Vide* remarks on Sōḍaśa Grantha A.I. 3, 7—22, A. II. 2, 3 and A. III. 2, and on Śuddhādvaita Mārtanḍa A.I. 80, 88, A. IV. 3.

6. *Nija Vārtā*, *Gharū Vārtā*¹ (by Gokul Nath), *Caurāsī Baiṭhakana kē Caritra*, etc.²—Published by Lalla Bhai Chagan Lal Desai, 110 Richey Road, Ahmedabad, 1979 V.E. (First Edition). This valuable work consists of an account of the different *Vārtās* (stories or incidents) associated with Vallabhacharya, along with detailed narrations of the stories connected with the eighty-four 'seats' founded by Vallabhacharya all over India, the twenty-eight seats established by Vitthaleshwar, the thirteen seats of Gokul Nathji and the seven seats of Hari Raiji and others. The *Nija Vārtā* consists of fifty-one *Vārtās* while the *Gharū Vārtā* embodies twelve *Vārtās*. Both these *Vārtās* purport to give a complete account of the incidents connected with the life of Vallabhacharya. They incorporate a detailed description of different tours conducted by Vallabhacharya. Dates and years have also been occasionally mentioned. The historical importance of this book is much enhanced by the fact that its authorship is assigned to Gokul Nathji, the son of Vitthal Nathji. It is not a scientific biography of Vallabhacharya, yet the events narrated therein flow out in such chronological gradation as can

¹ *Vide* A. II. 7, 8 and 9, A. III. 16.

² The name of the writer is not printed on the book. Puṣṭimārgiya Vaiṣṇavas generally attribute this work to Gokul Nathji, son of Vitthal Nath. I have seen a manuscript copy of this work in the Nathdwara Library, Nathdwara, but I am not in a position to say that the printed work is an exact reproduction of the manuscript. Some research work has to be carried on the different *Vārtās* attributed to Gokul Nathji. A comparison of these different *Vārtās* will at once convince us that they carry much interpolations. However, I soon intend to throw more light on this subject in a separate article.

easily win a place for it amongst the authentic treatises on the religious condition of Medieval India. The facts may be found exaggerated here and there, certain passages may appear spurious, historical incidents may by inter-mixed and twisted with religious bigotry, yet even on a closest scrutiny we cannot fail to discover historical facts scattered all over the book. The powerful tradition working behind the book cannot, however, go unheeded.

A few remarks may be made about the authorship of the work. The authorship of this work like **चौरासी वैष्णवन की वार्ता**, etc., is assigned to Gokul Nathji. From the standpoint of style and language the work has much in resemblance with the *C'aurāsī Vaiṣṇavan ki Vārtā* and *Do Sau Bāvan Vaiṣṇavana ki Vārtā*, works attributed to Gokul Nathji. But the following passages from 'Gharū Vārtā, Vārtā No. 1, will show that the present Vārtās have simply been narrated, and not dictated, by Gokul Nathji to his devotees and it would not be unreasonable to assume that the immediate followers of Gokul Nath might have scribed those Vārtās probably in the words of Gokul Nath but not without additions or alterations on their own part :—

‘अब श्री-गोकुल नाथजी आज्ञा करत भये ॥ जो श्रीआचार्यजी महाप्रभुजी आप अडेल में घर करिकें बिराजे ॥ तो पीछेकें कहुक चरित्र संक्षेप सों कहत हों सो सुनो ॥ यह सुनिकें ओता बहुत प्रसन्न भये ॥’

In the अट्टाईस बैठकन के चरित्र the colophon, of course, reads thus ‘इति श्रीगोकुलनाथजीकृत श्रीगुसाईजी की २८ बैठकन के चरित्र संपूर्ण’ but much reliance cannot be placed on such colophons as in the *Nija Vārtā* and *Gharū Vārtā* the words ‘गोकुल-नाथजीकृत’ are conspicuously absent from the colophons.

7 & 8. *Čaurāsī Vaiṣṇavana kī Vārtā*, Dō Sau Bāvan Vaiṣṇavana kī Vārtā¹.—By Gosain Gokul Nathji; No. 7 published by the Venkateshwar Steam Press, Bombay, and No. 8 published by Vaiṣṇava Thakurdas Surdas and Tulsidas Narottam, Jagdishwar Press, Bombay. in 1947 V.E. These two works like the preceding one have been written in Braj Bhāṣā prose. Both these treatises deal with an account of the incidents connected with the life of eighty-four Vaiṣṇavas and two hundred and fifty-two Vaiṣṇavas, initiated in the Puṣṭimārga by Vallabhacharya and Vitthal Nath. They are purely sectarian works but they supply much valuable information on the religious and social conditions of their times. Mohammedans like Rasa Khan, Tanasēn, Ali Khan, etc., have been included in these Vārtās. This only goes to show the greatness of Puṣṭimārga in the way of social reform. Even a Harijan Mohan Bhangi finds a place here. Indeed a wonderful inspiration this Bhaktimārga must have cast on the then-afflicted souls!

These Vārtās are the only authentic records which give systematic life-sketches of the famous Hindi poets of 'Aṣṭachāpa².' Historical references also occur in the works. For instance, the Vārtā of Sūrdās refers to an interview of Akbar, the Mogul Emperor, with the blind poet Sūrdās in which Akbar is said to have been much impressed by the piety and intellectual talents of Sūrdās. Besides there are other historical references too alluding to the Rajput Kings. General precepts, rituals and

¹ Vide A. II. 6 and 9, A. III. 16.

² Vide remarks on Puṣṭimārgīya Pada Saṅgraha A. II. 26.

ceremonies, as enjoined by the tenets of the Puṣṭimārga, have been mentioned here and there in these Vārtās. Even miracles, which are inevitably associated with the emotional side of religion, find a place in certain life-sketches of these books. Put with all this they will prove very useful for the study of emotional and historical aspects of the Puṣṭimārga. These Vārtās have a linguistic importance as well. The origin of Hindi prose is sometimes traced back to these Vārtās. Put it would be a digression to discuss this subject here. Those interested in it are recommended to consult critical books on the history of Hindi Literature.¹

9. Bhāva Sindhu, Vol. I ².—By Gosain Gokul Nath ; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, First Edition, 1978 V.E. This work, said to have been written by Gokul Nathji, contains a summary of twenty-four Vārtās selected from the different ' Vārtās ' written by the same author. These condensed Vārtās find extensive treatment in the C'aurāsī Vaiṣṇavana kī Vārtā, Nija Vārtā, etc. Although the present book stands in the name of Gokul Nath, it is very doubtful if Gokul Nath himself has prepared this short edition of some of his Vārtās. In this respect further investigation is necessary.
10. Vac'anāmṛta³.—By Gosain Gokul Nath ; published by Munshi Nawal Kishore, proprietor, Avadhā Samāc'āra, in his Mumbai-ul-ulūm Press, Mathura (1883 A.D.).

¹ Hindi Sāhitya kā Itihāsa by Ram Chandra Shukla ; Hindi Gadya Mimāṃsa by Rama Shanker Tripathi ; an article on Do Saw Bāvan Vaiṣṇavon kī Vārtā by Prof. D. Varma, M.A., in the Hindi Quarterly ' Hindustani ', Vol. II, No. 2, etc.

² Vide A. II 6, 7, and 8, A. III. 16.

³ Vide A. II. 11, 12, 13 and A. III. 7, 8, 16.

This little treatise in Braj Bhāṣā contains twenty-four moral instructions imparted by Gosain Gokul Nathji to one of his disciples named Kalyan Bhatt. In the course of these instructions the essential attributes of a Vaiṣṇava devotee have been enumerated in conformity with the philosophical tenets of the Mārga. This serves the purpose of a guide-book for the Puṣṭimārgīya devotees.

11. Śrī Kākā Vallabhaji Mahārāja kē Bāvana Vac'anāmṛta.¹
—By Kaka Vallabhaji; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, (1980 V.E.). This work contains fifty-two discourses in Braj Bhāṣā given by Kaka Vallabhaji to his disciples. In most of these discourses the stories, connected with the different Vaiṣṇavas and different Goswamis of the Vallabha Sampradāya, have been narrated. Here and there some queries associated with the Puṣṭimārga have also been answered. The eighth discourse records an interview of Gosain Vitthal Nath with Akbar and Bīr Bal. In the nineteenth discourse we find a short account of Mīrā Bāī. The devotional and historical material lying in these discourses will be found helpful in order to trace the evolution and development of the Mārga. These, however, have to be studied rather cautiously as it is not uncommon that one meets with some remarks, expressed therein out of religious zeal and enthusiasm, not in keeping with the principles of the Mārga². These 'discourses' are purely of an emotional character and they should not be taken too literally.

¹ Vide A. II. 10, 12, 13 and A. III. 7, 8, 16.

² Vide जो श्रीआचार्यजी महाप्रभुनकुं तथा श्रीगुसांईजीकूं श्रीनाथजीते अधिक जानने' (thirteenth Vac'anāmṛta).

12. Śrī Badma Nabha Das kē pāitālīsa pada tathā Śrī Gokulādhishjī Mahārāja kē paccīsa Vac'anāmṛta¹.—Published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1984 V.E.). In this book two different works by different writers have been incorporated. The forty-five poems of Badma Nabha Das mainly deal with the devotion of Radha and Kṛṣṇa without displaying any special literary merit. The twenty-five Vac'anāmṛtas in Braj Bhāṣā purport to give an account of certain incidents connected with the Goswamis in particular and other Vaiṣṇavas in general. Some historical material may be found in them.

13. Śrī Girdhar Lalji Mahārāja kē 120 Vac'anāmṛta².—By Girdhar Lalji, published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1979 V.E.). This work contains one hundred and twenty discourses in Braj Bhāṣā on various topics connected with the Mārga. Discussions on certain rituals, ceremonials and incidents connected with the Puṣṭimārgīya Vaiṣṇavas, and a description of tours undertaken by some of the Goswamis along with remarks on subjects of general religious importance are the chief characteristics of this work. The book may supply some valuable hints on the devotional and historical background of the Mārga and on its gradual development. The following passage from the 14th 'Discourse' shows signs of the Puṣṭimārga diverting from its beaten path:—

‘आपने (गिरिधरजी गोस्वामी) आज्ञा करी जो श्रीभगवान् ओर श्री गुरुदेवको दोउन को एक रूप ही समजनो हुनके विषे द्विधाभाव न राखनो।’

¹ Vide A. II. 10, 11, 13 and A. III. 7, 8, and 16.

² Vide A. II. 10, 11 and 12 and A. III. 7, 8 and 16.

Although there may be nothing fundamentally wrong in this passage yet it cannot be denied that such passages have often been misused at the hands of certain Goswamis resulting in baneful and scathing remarks on the Mārga.

14. Śuddha Puṣṭimārga Siddhānta.—By Adhikari Seth Charandas ; published by Śrī Kṛṣṇa Bhaṇḍār, Nathdwara, in 1976 V.E. This small tract deals with the origin and significance of the Aṣṭākshara¹ and Bañcākshara² Mantras (charms) but the theme does not run systematically. Some devotional beliefs of the Mārga mixed with folklores also find a place here. There are no philosophical discussions in it.
15. Śuddhādvaita Darśana in three parts.—By Pt. Rama Nath Shastri ; published by him from the Bāṛa Mandir, Bhuleshwar, Bombay (1969 V.E.). The present work comprises three parts which have been printed separately. The first part discusses the nature of the Universe, the relation of Brahma with the Universe and the nature of soul (जीव). In the course of these subtle and abstruse discussions the learned writer has examined and criticised certain theories, viz., मिथ्यावाद, आरंभवाद, etc., sponsored by different schools of religious thought. The second part enters into a critical debate with Māya Vāda on the nature of Brahma and His attributes and denounces the Māya Vādic principles on the basis of the Puṣṭimārga. The third part gives a conception of Saddharma (real Dharma) and discusses the ways for the attainment of Brahma according to Śuddhādvaita philosophy. The preaching of the Nirguṇa Bhakti Mārga

¹ श्रीकृष्णः शरणं मम ।

² कृष्ण तवास्मि ।

(non-dualistic theism in the form of self-less devotion) is the main gospel of the book.

The work has been written in modern Hindi prose and the thoughts have been expressed in simple, although at certain places unintelligible, language. It is based on Aṇu Bhāṣya, Subodhinī, Vidvānamanḍana and other philosophical works of the Mārga. In support of his arguments the writer has generally given quotations from these authoritative works. The third part seems to have been written rather hastily as it does not manifest the analytical style followed in the first two parts.

16. Śuddhādvaita Siddhānta Sāra.—Written and published by Rama Nath Shastri, Bara Mandir, Bhuleshwar, Bombay (1916 A.D.). This is a small tract purporting to give a gist of some of the salient features of the Puṣṭimārga. Besides discussing some of the philosophical tenets the writer has explained the significance of the term 'Puṣṭi Bhakti' expounding the essential elements of Bhakti (reverential love to God) and Sēvā (path of divine service) as prevalent in the Mārga.
17. Brahma Sambandha¹.—Written and published by Rama Nath Shastri, Bara Mandir, Bhuleshwar, Bombay, in 1926 A.D. The main object of this small treatise is to interpret and elucidate the real significance of Brahma Sambandha² as enjoined by Vallabhacharya,

¹ Vide A. II. 18.

² The initiation in the Puṣṭimārga is technically called Brahma Sambandha, i.e., affiliation of the soul to God by a Guru (preceptor). This initiation ceremony consists of two rites, viz., शरणमन्त्रोपदेश and आत्मनिवेदन. The first entitles one to be called a Vaisṇava, while the latter authorises him as an Adhikāri in the

in order to check the bitter and often most scandalous remarks alleged to have been levelled on the Mārga. The critical remarks of the writer are quite convincing.

18. *Brahma Sambandha or Puṣṭimārgīya Dīkshā*¹.—By Rama Nath Shastri; edited by Bhatt Braj Nath Sharma; published by The Sanātana Bhakti Mārgīya Sāhitya Sevā Sadan, Śrī Gokul Nathji Śrī Madan Mohanji kā Mandir, Bengali Ghat, Muttra, in 1932 A.D. This is mainly a reproduction of

Puṣṭimārga. Both these rites are generally performed through a descendant of Vallabhacharya. In his commentary on Siddhānta Rahasya, Gosain Gokul Nathji interprets the *Brahma Sambandha* as follows—‘ब्रह्मसंबंधकरणं नाम पुनर्मागीयाचार्यद्वारा भगवन्निवेदनम्’ This clearly shows that the ‘complete dedication’ (*आत्मनिवेदन*) is to Lord Kṛṣṇa through Śrī Madacharya. The solemn declaration pronounced at the time of the *आत्मनिवेदन* ceremony is this—सहस्रपश्चित्समस्त कालजातकृष्ण-वियोगजनिततापकुक्षानन्दतिरोभावोऽहं भगवते कृष्णाय देहेन्द्रियप्राणान्तःकरणान्तिद्धमंश्च दारागारपुत्रासचित्तेहापराणि आत्मना सह समर्पयामि, दासोऽहम्, ‘कृष्ण तवास्मि’।

O, my Lord Kṛṣṇa, I have been separated from thee from thousands of years. My ecstasy (*आनन्द*) has vanished on account of the pangs and distractions caused by thy separation (Reduced to this miserable condition as I am) I (hereby) dedicate to thee all (that I possess), *viz.*, my body, limbs, life (*प्राण*), heart (*अंतःकरण*) and their attributes, wife, son, home, family, wealth and property and the soul. O, Kṛṣṇa, I am thy servant, I am thy own.

Perhaps in the time of Vallabhacharya the initiative Mantra had been a very simple formula ‘कृष्ण तवास्मि’ as put by Vallabha in the *Subōdhinī*. Mr. Telivala suggests in his introduction to *Anu Bhāṣya* Vol. III, Pāda 4, that the language used in the present *Gadya Mantra* is probably the work of Vitthaleshwar who simply added a solemn declaration to the Mantra कृष्ण ‘तवास्मि’ in order to render its significance perfectly intelligible without meaning thereby any addition or subtraction in the original formula.

It may, however, be remarked that Vallabhacharya does not mention anywhere in his writings that the initiation should be performed only through him or his descendants.

¹ *Vide* A. II, 17.

the preceding tract mentioned in § 17. It also contains a short introduction, by Braj Nath Sharma, the son of Rama Nath Shastri, wherein he expresses the current belief about the divine origin of the Brahma Sambandha Mantra and its significance.

19. Bhagavāna Akshara Brahma.—By Rama Nath Shastri, published by the same from the Bara Mandir, Bhuleshwar, Bombay, in 1986 V.E. This small treatise contains a discussion on Akshara Brahma based on the different writings of Vallabhacharya. Akshara Brahma is said to be one of the stages of Brahma in which Purushottam (Omnipotent God) manifests Himself for the creation of the Universe¹. The nature of Akshara Brahma and His close relation with Purushottam has been shown in the book in the light of Śuddhādvaita system of philosophy.
20. Rāsa Līlā Virōdha Parihāra².—By Rama Nath Shastri; published by Braj Nath Sharma, Viśārada, Nathdwara, in 1989 V.E. The amorous dealings of Śrī Kṛṣṇa with the Gōpīs, specially the Rāsa Līlā (a circuitous dance), have often been subjected to bitter and scandalous remarks by the critics of Rādhā-Kṛṣṇa cult casting aspersions on the morality of Kṛṣṇa. In the present booklet the learned writer has tried to refute the unwholesome charges made against Rāsa Līlā. From his arguments supported by the verses of Bhāgawat itself, the writer has attempted

¹ भगवान् यदा येन रूपेण कार्यं कर्तुमिच्छति तदा तद्रूपमेव व्यापारयति । तत्र ज्ञानेन मोक्षो देय इति यदा विचारयति तदा अक्षरमेव ब्रह्मस्वरूपं, पुरुषोत्तमस्याधारभागश्च-
रणास्थानीयः (Tatvadīpa Nibandha Sarva Nirṇaya Prakaraṇa).

² Vide A. IV. 5.

to prove that Rāsa Līlā was quite an innocent sport with a theosophical significance attached to it.

21. Śri Mad Vallabhāchārya aura unakē Siddhānta¹.—By Braj Nath Bhatt Viśārada; published by The Vellanateeya Vidya Samiti of Bombay, in 1927 A. D. This is an extensive work dealing with the life and teachings of Vallabhacharya. It is chiefly devised to meet the requirements of Vellanateeya students of the Mārga. The author has appended an introduction to the book in English wherein he attempts to give a connected account of Acharyaji's life together with some of the basic doctrines of Puṣṭimārga. This introduction can claim no originality, its language at certain places having been borrowed from the writings of Mr. Telivala, Mr. N. G. Shah and others without any acknowledgment. The language, too, is sometimes so defective that it severs the logical flow of ideas.

The text itself has been divided into twenty-nine-chapters. It deals with multifarious topics connected with the Mārga such as life and works by Vallabhacharya, the manifestation of Śri Nāthji, Brahma Sambandha, significance of the Puṣṭi Bhakti, some philosophical tenets of the Mārga, difference between Māya Vāda and Brahma Vāda and the like. No analytical or comparative method has been followed in the book. Even authorities have not been quoted in support of arguments. The author writes in the preface 'till this work goes in Press, there exists no book in Hindi literature which can give a clear but full view of

¹ *Vide* A. I. 91, 92, 93, 94, A. II. 22, A. III. 15, 24, 25 and A. IV. 10.

this Puṣṭimārga,' but it is very doubtful if the present work can stand scholarly as well as literary test. It has to be studied cautiously in the light of other standard works.

22. Śri Mad Vallabhāchārya.¹—By Bhatt Śri Rama Nath Shastri; published by Mani Lal Iccharam Desai at the News Printing Press, Bombay, in 1984 V.E. This is a short lecture on Vallabhacharya giving a bare outline of his life and works. The lecturer discusses the conception of the term Āchārya (preceptor) and the reasonableness of its application to Vallabhacharya. After drawing a character-sketch and reviewing some of the religious principles of Vallabhacharya the lecturer has justified the title 'आचार्यवर्य,' associated with the name of Vallabhacharya.
23. Śri Nāthjī ki Prākāṭya Vārtā.²—By G. Hari Raiji; published by the Vidyavibhaga, Nathdwara, in 1976 V.E. This treatise in Braj Bhāṣā gives a detailed account beginning with the manifestation of the idol 'Śri Nāthjī' on the Goverdhan Hill in Muttra to its transfer to Sihad, a village in the state of Udaipur, where stands the present shrine of Śri Nāthjī. Idols and images of worship are often associated with mythical legends based on divine origin. The manifestation of the image of Śri Nāthjī is also shrouded in myths. The legend runs that the idol of Śri Nāthjī gradually manifested itself out of the Goverdhan Hill after commanding Vallabhacharya in dream to come over there and take it in his

¹ *Vide* A. I. 91, 92, 93, 94, A. II. 21, A. III. 15, 24, 25 and A. IV. 10.

² *Vide* A. III. 18, 23.

charge. The beautiful idol was then installed in a shrine by Vallabhacharya at the Goverdhan Hill and other arrangements for the upkeep of the shrine were also made. A priest was appointed and a systematic mode of worship was prescribed. After Vallabhacharya, Gosain Vitthal Nath elaborated the Sevāprakāra on a large scale by requisitioning aesthetic material. It was in the time of Aurangzeb, the Mogul Emperor, that for fear of persecutions the idol of Śri Nāthjī had to be removed from its original abode. In 1726 V.E. the idol of Śri Nāthjī was brought to Sihad (the present Nathdwara) after passing through Agra, Jodhpur, etc. Under the patronage of the Udaipur Darbar an imposing temple was afterwards built to 'Śri Nāthjī' who has become the advising deity of the Puṣṭimārgīya Vaiṣṇavas. Here stands the shrine even to this day in all its magnificence rendering the spot one of the most popular religious centres in Northern India.

The present 'Prākāṭya Vārtā' will furnish much valuable historical information about the Mārga, as it contains graphic descriptions of various events connected with 'Śri Nāthjī.'

24. Śri Dwārkā Nāthjī kē Prākāṭya kī Vārtā.—Published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, in 1980 V.E. This is a treatise in Braj Bhāṣā purporting to give an account of the manifestation of 'Śri Dwārkā Nāthjī,' the idol worshipped at Kāñkarōlī. Popular legends associate the name of the famous Paurāṇic Sage Ambarīṣa with the idol of 'Śri Dwārkā Nāthjī.' It is said that it is the same idol which was worshipped by Ambarīṣa in pre-historic times. The present treatise narrates the story of the recovery

25. Śrī Mathurādhīśa C'aritam.—Compiled by Pt. Gokul Das and published by Pt. Lakshman Sāc'aurā, Vitthal Nath Pathshala, Kotah. This little treatise in Braj Bhāṣā gives an account of the manifestation of the idol of Śrī Mathurādhīśaji' and its subsequent transfers to different persons. The idol of Śrī Mathurādhīśaji is reckoned among one of the main eight idols worshipped by the Goswamis in the line of Vallabhacharya. The idol was at first entrusted to Padma Nabha Das by Vallabhacharya, but later on it passed into the hands of Goswamis and ultimately it was brought from Gokul and installed in a shrine built at Kotah. The idol is still there in the temple built after its name. References are found in this book about different Goswamis who from time to time were connected with this idol, which may supply some valuable information for a comprehensive history of the Mārga.

26. Puṣṭimārgīya Pada Saṅgrah¹.—Compiled by Vaiṣṇava
Vols. I, II and III Thakurdas Surdas and
Tulsidas Narottam
Valmiki Brāhmaṇa ;

¹ *Vide* A. II. 7-8, 27.

प्रथम भाग—जन्माष्टमी से रक्षाबंधन

तक के कीर्तन

द्वितीय भाग—वसंत धमार के कीर्तन

तृतीय भाग—नित्य के कीर्तन

printed at The Jagdishwar Press, Bombay, in 1944 V.E. This monumental work

consist of Kīrtanas (hymns sung in a temple) which are sung all round the year in the Puṣṭimārgīya temples. These Kīrtanas have been composed in Braja Bhāṣā by different Puṣṭimārgīya and other devotees including the famous band of poets forming the school of 'Aṣṭachāpa'.¹ It was the elaboration and development of aesthetics introduced in the mode of worship by Vitthaleshwar, which inspired the devotees to pour out their heart in some of the finest lyrics ever composed. These devotional lyrics are replete with ardent expressions of love for Kṛṣṇa and Rādhā, the inspiring deities in the Puṣṭimārga. Slumber songs, cradle songs and other allied themes have been treated in them with a child-like idealism which our present sophisticated age cannot possibly initiate or realise. The lyrics composed by the poets of the 'Aṣṭachāpa' school reveal a depth of feeling, exuberant expressions of emotion, sincere protestations of devotional love most poignantly drawn, and a melody of rhyme, —that can easily place them by the side of the best lyrical poetry ever composed in any literature of the world.

The keen insight, wonderful imagination and the masterly genius of Surdas have easily lifted

¹ Gosain Vitthal Nathji assigned a general name 'Aṣṭachāpa' to the eight leading poets of Puṣṭimārga, viz., Kṛṣṇa Das, Sūrdas, Parmāraṇḍ Das and Kumbhandas (four disciples of Vallabhacharya) and Chaturbhuj Swami, Chhit Swami, Nanddas and Govind Das (four disciples of Vitthal Nath). These poets stand out as the great inspired devotees in the Radha Krishna cult of that time.

him to the foremost rank of Hindi poets. The charming melody and rhythm flowing out of the lyrics of Nanddas are unique in their beauty and splendour. The following words of Shelley 'I have unlocked the golden melodies of the deep soul' may in all fitness be applied to Nanddas. So merrily flow the verses of Surdas that in a characteristic phrase Sir George Grierson speaks of the 'too cloying sweetness of the blind poet of Agra.' It must be remembered that the 'Aṣṭachāpa' poets were the chief Kīrtanakārs (singers before the deity) at the shrine of Śrī Nāthjī and it was mainly through their songs that an impetus was given to the propagation of the Puṣṭimārgīya principles.

Besides literary excellence, these Kīrtanas or devotional lyrics have yet another significance. They were composed to be sung before the deity in conformity with the different Darśanas¹ (मंगला, स्वाल, शृंगार, राजभोग, etc.), festivals and ceremonies observed in the Mārga. Their music was set in tunes agreeing with the particular time and the season. For instance, at the time of Maṅgalā Darśana (the first Darśana of the day) in the month of चैत्र, only the following types of Kīrtanas—कुंज के कीर्तन, खंडिता के, चोरी के, उराहने के, etc., can be sung set in भैरव, रामकली, etc., tunes which are sung in the morning; in the शयन आरती (the last Darśana) of the same month चैत्र the following types of Kīrtanas—पौढ़बे के कीर्तन, मान, आसक्ति, etc., can be sung adapted in the following tunes, ईमन, कल्याण, अडाना, विहाग, etc., which are the Rāgas of the evening. In the same way different

¹ There are eight Darśanas observed in Puṣṭimārga. These Darśanas connote the appearance of the deity before the devotees at eight different intervals during the day. According to different seasons some changes are made in this arrangement.

types of Kīrtanas are sung at different intervals of the day set in different tunes which change according to time, season and ceremonies. The whole arrangement of these Kīrtanas is so aesthetic and scientific that if we study them from this new angle of vision they are sure to furnish much valuable yet critical information lying latent in them. On the devotional aspects of the Mārga the importance of these Kīrtanas can never be dispensed with.

A few remarks may be made in passing about the contribution of the Mārga to Hindi Literature. We know that a major part of our Medieval Hindi Literature hails purely from the Puṣṭimārga. This chiefly consists of the lyrics composed by the Vaiṣṇavaite singers, Vārtās and Vacanāmṛtas. After Vallabhacharya it was mainly through these Kīrtanas and Vārtās that the principles of the Mārga became known to the common people. Braj Bhāṣā became the *via media* for the dissemination of the tenets of the Mārga. No study of the Mārga can ever be regarded complete without a comparative study of these Kīrtanas and Vārtās.

27. Sūr Sāgar.¹—By Surdas; edited by Radha Krishna Das and published by the Venkatēshwar Press, Bombay. This is a compilation of about 6000 verses composed by Surdas. All these verses are Padas which were chiefly meant to be sung. Surdas is reported to have composed one lakh and twenty-five thousand verses but they have not been recovered as yet.²

The present edition of Sūr Sāgar contains many glaring mistakes and a critical edition of Sūr

¹ *Vide* Remarks on Puṣṭimārgīya Pada Saṅgrah A, II. 26.

² *Vide* Mishra Bandhu Vinod by Miśra Bandhu; Hindi Sāhitya kā Itihās by Pt. Ram Chandra Shukla.

Sāgar is indeed a desideratum.¹ About the importance of this work in the study of the Mārga readers are recommended to refer to the remarks made in the preceding section on 'Kīrtanas,' as a large portion of Surdas's Padas is incorporated in the 'Puṣṭimārgīya Pada Saṅgrah' referred to above.

28. Gōpāl Dās jī Kṛta Śrī Vallabhākhyāna kō Braj Bhāṣā mē Vyākhyāna.²—By Gopal Das ; annotated by G. Sri Jivan Lalji with short footnotes by Gatoo Lalji ; printed at the National Press, Bombay, in 1928 V.E. This is a commentary in Braj Bhāṣā on the Gujrati poem 'Vallabhākhyāna' composed by Gopal Das, a Puṣṭimārgīya devotee. Gopal Das was a contemporary of Gosain Vitthal Nath. In his exquisitely simple and graceful devotional lyrics Gopal Das sings the glories of Vallabhacharya and his son, Vitthal Nath. His intense devotion to G. Vitthal Nath and his marked reverence for the Goswamis of the Mārga had been the chief instrument for moulding the tenderest attitude of the Gujrati Vaiṣṇavas towards the Goswamis of the Mārga. The Vallabhākhyāna is regarded a very revered poem by the Vaiṣṇavas. The Sāmpradāyik Gāthā attributes this poem to a direct inspiration flowing to Gopal Das from Vitthaleshwar himself.³
29. Tulsī Māla Dhāraṇa Vādaḥ.—By Purushottamji ; translated into Braj Bhāṣā by Ratna Gopal Bhatt of

¹ The Nagari Pracharini Sabha, Benares, has undertaken the monumental task of publishing an up-to-date critical edition of Sūr Sāgar.

² *Vide* A. III. 30.

³ The story runs that Gopal Das, who was dumb, recovered his powers of speech as a result of chewing a betel-leaf offered by Vitthaleshwar.

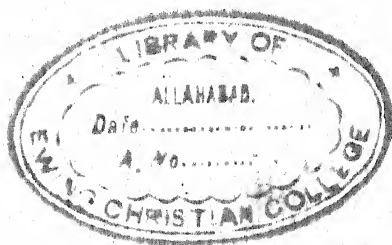
Benares; published by Śrī Madhu Sudan Lalji at the Venkateshwar Press, Bombay (1959 V.E.). This little treatise discusses the special significance attached to a rosary made of the basil plant worn by kuṣṭimārgīya Vaiṣṇavas.

30. Vallabha Puṣṭi Prakāśa.—Compiled and published by Mukhiaji Raghu Nathji Shivaji, Saraswati Bhandar, Mathura; printed at the Venkateshwar Steam Press, Bombay, in 1963 V.E. This treatise purports to give a detailed description of the different modes of worship followed in the seven Gaddīs¹ of the Puṣṭimārga. The book has been compiled on the authority of सेवाकौमुदी, हरिरायजी की आह्निक, भावना and other works. It is divided into four parts. The first part deals with the daily worship observed from मंगला (the first Darśana) till शयन (the last Darśana) along with special modes of worship observed during different festivals of the year. It also embodies a description of dress, ornaments, dainties and embellishments followed at different times in the Sampradāya. The second part contains deductions about all the festivals of the year such as Janmāṣṭamī, Annakūṭā, etc., observed according to the procedure practised in the Mārga. The third part treats of the mythical significances (भावना) associated with the different idols and with the decorations undertaken on

¹ Vitthaleshwar had distributed seven different Swarupas (idols) among his seven sons in 1634 V.E. A joint right of offering services to Śrī Nāthjī was held by each one of them, the eldest son Giridharjī being entrusted with the control of Śrī Nāthjī under the rule of primogeniture. These seven Swarupas are known as the seven 'Nidhis.' Each of these Swarupas was later on installed in shrines of the respective seven sons. This came to be designated in the Sampradāya as seven Gaddīs or seats.

different festivals. These are merely emotional interpretations and it would not be worth while either to search out or attribute to them any philosophical significance. Although the topic of Bhāvanā has not been dealt with systematically yet it will throw light on the devotional forms of worship prevalent in the Mārga. The Puṣṭimārgiya outlook on different festivals will be found useful for a comparative study of this subject. The fourth part consists of illustrations of different materials utilised in the worship of the deity, *e.g.*, पाग (head-dress), टिपारा (an ornament), मुकुट (crown), फूल मंडली (flower houses), etc. The different forms of Āratīs (waving lights before an image) have also been mentioned.

The Vallabha Puṣṭiprakāśa is the first systematic compilation in Braj Bhāṣā on the subject of Sevā-prakāra (modes of worship).



APPENDIX III

Sāṃpradāyik Literature in Gujarati :—

1. Aṇu Bhāṣya¹ (in two parts).—Translated by Jetha Lal Goverdhandas Shah, M.A.; Part I published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1983 V.E.); Part II published by Jetha Lal Goverdhandas Shah, M.A., Secretary, Puṣṭimārgiya Vaiṣṇava Mahāśabhā, Ahmedabad (1985 V.E.). This is a literal translation of Aṇu Bhāṣya into Gujarati with exhaustive notes and explanations. The original text of Aṇu Bhāṣya by Vallabhacharya has not been incorporated in this Gujarati edition but the Sanskrit text of the Brahma Sūtras by Bādarāyaṇa has been quoted in full. The much informative footnotes and explanations testify to the writer's great hold on the different commentaries on Aṇu Bhāṣya by Purushottamji, Iccharam, Yogi Gopeshwarji and others as also to his conversance with the various schools of Upaniṣadic thought. Mr. Shah has also taken pains in sketching a detailed summary of every Adhikaraṇa. Extracts from Śāṅkara Bhāṣya and other Bhāṣyas have been given at proper places with a view to examine them in the light of Aṇu Bhāṣya from a comparative point of view. In the introduction to Part I of this treatise Mr. Shah has discussed critically in detail such topics as the joint-authorship of Aṇu Bhāṣya, the etymological significance of the word Aṇu Bhāṣya, the theory about the existence of a Brhad Bhāṣya, the

¹ *Vide* Remarks on Aṇu Bhāṣya App. I. 5 and A. IV. 1, 8, 9.

various commentaries in Sanskrit on Aṇu Bhāṣya, the place of Aṇu Bhāṣya among the other Bhāṣyas on Vēdānta Sūtras and similar other topics. A short life of Vallabhacharya has also been embodied in the introduction. In writing this valuable introduction Mr. Shah seems to have utilised all the available material supplementing it with his own original views and inferences which, although open to challenge by other scholars, flow out of sound reasoning.

The introduction to Part II contains two valuable articles: one entitled 'Śuddhādvaita Siddhānta' by Mr. J. G. Shah, M.A., and the other 'Puṣṭimārgīya Siddhānta Śēkhara' by Hari Shanker Onkarji Shastri. Both these articles deal with an exposition of the doctrines of Śuddhādvaita philosophy, especially the article by Mr. Shah is a valuable contribution to the philosophical literature on the Puṣṭimārga. In elucidating the tenets of the Mārga Mr. Shah has adopted a comparative and an analytical method. Strong arguments have been advanced in favour of Puṣṭimārgīya doctrines on God, Universe, soul etc., while the different theories, such as Prativimbavāda, etc., held by Māyāvādins have been subjected to weighty criticism. Mr. Shah deserves much credit for his enterprise. If, however, he had undertaken the task of translating Aṇu Bhāṣya into English the merit of this work would have been much enhanced and universally recognised.

2. Vaiṣṇavī Śōḍaśa Grantha¹.—Translated in Gujarati verses by Nanha Lal Dalpat Ram; published by Mahadeo Rama Chandra Jagushte, Traṇa Darvājā, Ahmedabad (1925 A.D.) This is only a literal

¹ Vide Remarks on Śōḍaśa Grantha App. I. 3, 7—22, and A. II. 2, 3, 5.

translation *ad verbatim* of every stanza composed by Vallabhacharya in his smaller works, collectively known as 'Śōḍaśa Grantha.' Side by side with the Gujarati verses, the corresponding original Sanskrit Ślōkas have been printed in this edition. This is, so to say, a simple Gujarati adaptation of the Śōḍaśa Grantha without giving any critical exposition whatsoever of the thoughts embodied in it.

3. Śri Purushottama Sahasra Nāma Stōtram¹.—By Vallabhacharya ; translated into Gujarati prose by Bhadra Shanker Jai Shanker Shastri from the Sanskrit commentary by Raghu Nathji ; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1929 A.D.). Raghu Nathji, the fifth son of Gosain Vitthala Nath, wrote a commentary in Sanskrit entitled 'Nāma C'andrikā' on the Purushottama Nāma Sahasra Stōtra (one thousand synonyms of the name Purushottam, the technical name assigned to the transcendental deity in the Śuddhādvaita system of philosophy) by Vallabhacharya. The present treatise purports to give a Gujarati rendering of the Nāma Candrikā together with the original Sanskrit Kārikās by Vallabhacharya.
4. Śri Aṣṭākshara Mantrārtha Nirūpaṇam.—Commented upon by Gosain Vitthala Nath, translated into Gujarati prose by J. G. Shah, M.A., on the basis of the aforesaid commentary ; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1979 V.E. The initiative formula in Puṣṭimārga 'श्रीकृष्णः शरणं मम' technically known as the अष्टाक्षर मंत्र (a formula of

¹ Vide A. I. 29.

eight words) preached by Vallabhacharya has been elucidated very lucidly in a Vivṛtti (a Skt. commentary) by Gosain Vitthala Nath. In the present Gujarati edition, Mr. Shah has brought out in Gujarati prose the special significance attached to the अष्टाक्षर मंत्र as dealt by Vitthaleshwar in his Vivṛtti. The original Sanskrit Ślōkas composed by Vitthaleshwar panegyricizing the glory and sanctity of the अष्टाक्षर मंत्र have also been incorporated in this book along with their Gujarati explanations.

5. Vijñapti¹.—By G. Vitthala Nath; Gujarati translation published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1977 V. E. This booklet contains a literal translation into Gujarati of the two hundred and four devotional hymns incorporated under a general name Vijñapti composed by Vitthaleshwar at the time of his separation from Śrī Nāthjī. The events leading to this separation have been narrated in a short introduction to this book. The original text of the Vijñapti has not been given here.
6. Saundarya Padya.—By G. Vitthala Nath; edited and translated by Shastri Chiman Lal Hari Shanker Bhatt; published by Puṣṭi Siddhānta Kāryālaya, Lala Baba ka Mandir, Bhuleshwar, Bombay, 1978 V. E. Vitthaleshwar composed a Saundarya Padya in Sanskrit representing therein the form of Vallabhacharya and its significance for the devotees. This Saundarya Padya along with its two commentaries in Sanskrit by Gokulōtsava and Sānchaura Gopaldasji and a Gujarati translation on the former commentary has been printed in the form of the present treatise.

¹ *Vide* Remarks on Vijñapti App. I. 73.

7. Śrī Gokulesh nā Hāsyaprasaṅgō Athavā Vacanāmṛtō¹
(Part I).—By Gosain Gokul Nathji; Gujarati version edited and published by Dīna Kīnkara, Śrī Devakī Nandan Niwas, Railwaypura, Ahmedabad, 1983 V.E. This is a work attributed to Gokul Nathji containing one hundred and seventy-seven religious dissertations or discourses imparted by him to his devotees. These discourses (Vacanāmṛtas) deal with the various topics connected with the Mārga, particularly with the rites, ceremonies, modes of worship and the doctrine of devotional love to be observed by Puṣṭimārgīya devotees. At several places the virtues of Mahāprabhu Vallabhacharya have been extolled in most glorious terms. Mythical beliefs and legends which are inevitable in such religious treatises also find a place here.

The authenticity of this work has, however, to be tested on the basis of the original manuscript alleged to have been written by Gokul Nathji in Braj Bhāṣā prose.² The present Vacanāmṛtā is a different work from the 'twenty-four published Vacanāmṛtas' by the same writer written in Braj Bhāṣā prose. The fact that it is only Part I suggests that some more Vacanāmṛtas by Gokul Nathji have had to be printed, although Part II has not, as yet, seen the light. With all misgivings about the present work it should never be forgotten that a major part of the literature, connected with the religious movement of the Medieval Period, is still

¹ *Vide* Remarks on Vacanāmṛta A. II. 10, 11, 12, 13 and A. III. 8, 16.

² I have not come across any printed copy of the Braj Bhāṣā version of this Vacanāmṛta nor seen any manuscript copy of it in the Nathdwara Library. G.

lying unpublished and consequently unknown to scholars. Hence it would be unreasonable to infer anything unless a satisfactory research has been carried out on the works attributed to Gokul Nathji. These may, in all probability, provide a fresh yet valuable contribution to the history of Hindi Literature.

8. *Battisa Vacanāmṛta*¹.—By Goswami Gōpikālaṅkāraji *alias* Mattū Lalji ; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1981 V.E. This Gujarati booklet contains thirty-two *Vacanāmṛtas* (religious dissertations) by Mattū Lalji printed in the *Dēvanāgarī* Script. In the course of these *Vacanāmṛtas* certain *Paurāṇic* (mythological) legends have been narrated in support of the influence wrought by the unbounded devotion of certain devotees. Some scattered aspects of the *Puṣṭimārgīya Bhakti* have also been discussed in them. It is not clear whether these *Vacanāmṛtas* have been reproduced from *Braj Bhāṣā* prose or that they owe their independent origin to Gujarati itself. Since a large number of *Vacanāmṛtas* written by *Puṣṭimārgīya* Goswamis are to be found in *Braj Bhāṣā*, it may be assumed analogically that the original of the present *Vacanāmṛta* by Mattū Lal may have been in *Braj Bhāṣā*.
9. *Puṣṭimārgīya Siddhānta athavā Śuddhādvaita nā Mūlatatva* (in three parts).—By Patwari Ranchoddas Vṛindavundas, B.A., LL. B.; published by *Puṣṭimārgīya Vaiṣṇava Maha Sabha*, 110, Richey Road, Ahmedabad. This book deals with the general principles of the *Puṣṭimārga* on the basis of Vallabhacharya's writings

¹ *Vide* A. II, 10, 11, 12, 13 and A. III, 7, 16.

supported by apt remarks from the different Upaniṣads and the Bhāgawata. Besides entering into a critical philosophical discussion on the conceptions of God, Universe, soul, etc., the learned writer has devoted separate chapters to an exposition of the importance of Bhāgawat and to the omnipotence of Lord Kṛṣṇa. In a fresh chapter, the 'Kṛṣṇa C'aritra' by Bankim Chandra Chatterji has been examined in the light of Bhakti preached by the Mārga. The comparative method, however, has not been followed.

10. Śuddhādvaita Siddhānta¹.—By J. G. Shah, M.A.; published by the author from the Vaiṣṇava Dharma Maha Sabha, Ahmedabad, 1985 V. E. This is a philosophical treatise on Puṣṭimārga. It is only a reprint of the article with this very name embodied in the introduction to Part II of the Gujarati translation of Aṇu Bhāṣya.
11. Bhakti Mārganu Rahasya—Published by Mulji Nathji Kothari, and printed at the Gujarat Printing Press, Ahmedabad. This is a compilation of different lectures on the doctrine of devotion delivered from time to time, by Goswamis Bala Krishna Lal, Aniruddhacharya and Kanhaiya Lal of Kankaroli, Nadiad and Gokul respectively. The various philosophical and devotional aspects of the Mārga have been discussed in a general way in these lectures. An estimate of Vallabhacharya and his career has also been made in one of these lectures.
12. Puṣṭipathadarśikā.—By Tulsidas Lallu Bhai Shah; published by Puṣṭimārgiya Pustakālaya, Dhandhuka, 1982 V. E. This is a religious catechism embodying

¹ Vide Aṇu Bhāṣya App, III. 1.

thirty-three discourses on general rules or precepts for the guidance of the Puṣṭimārgīya Vaiṣṇavas. Apart from some discussions on the broad outlines of the conception of Bhakti in the Mārga the writer has also dealt with such general topics as the significance of the incarnation of God in human form, the necessity of unflinching faith in God and the importance of restraint over the senses, etc.

13. Puṣṭimārgīya Vaiṣṇavō nu Āhnikā.—Written and published by Bhatt Jata Shanker Shastri, Kankaroli, 1988 V.E. This booklet sets forth for the guidance of the Puṣṭimārgīya Vaiṣṇavas the religious rites to be performed daily at particular hours of the day. Some general rules of conduct have also been incorporated in it.
14. Puṣṭipatha Rahasya tathā Śadritu Varṇana anē Hari Bhakta Candrikā.—By Daya Ram poet; compiled and published for Govind Lal Chota Lal Parekh by the Laskhmi Electric Press, Bombay (1930 A.D). This is a compilation of three different poetical compositions by the Gujarati Puṣṭimārgīya poet Daya Ram (1833—1909 V.E.). These are the devotional outpourings of the heart of a devotee. Their chief object is to engender and foster love for Lord Kṛṣṇa. The first poem gives some general guiding principles of Advaitapūrvaka Bhakti (self-less devotion based on non-dualistic theism) preached by Vallabhacharya; the second gives a description of the various seasons wherein the classical theme 'the pangs of separation growing at the heart of Rādhā, the divine consort of Kṛṣṇa,' has been harped on; the third is an inspired enumeration of some of the different Vaiṣṇava devotees who have flourished from time to time.

Daya Ram's works are much esteemed in Gujarati literature.

15. Śrī Vallabha C'aritra¹.—By Lallu Bhai Pran Vallabhadas Parekha; edited and published by Moti Lal Lallu Bhai Parekha, M.A., LL.B., Diwan, Baria State, Third Edition, 1923 A.D. This is the most systematic biography of Vallabhacharya written in any language so far. It gives a chronological and comprehensive treatment of the incidents associated with the life of Vallabhacharya. This fact has been greatly conducive to elevate the popularity of the book in Gujarati. Its first edition was printed in 1907, the second in 1910 and the latest came out in 1923. The book is divided into 18 chapters. In the introduction the writer has sketched briefly the political, social and religious conditions of India during the time of Vallabhacharya. A description of different tours conducted by Vallabhacharya with a view to propagate his teachings has been given at full length. There is also a detailed description of the religious polemics entered into by Vallabhacharya with the representatives of different schools of philosophy at the Religious Convention held by Krishna Deva Raja of Vidya Nagar as a result of which Vallabha coming out triumphant had been honoured by a Kanakābhiṣēka ceremony.² One chapter has been devoted exclusively to the treatment of the broad principles of Śuddhādvaita philosophy supported by some of the writings of Vallabhacharya. In a separate chapter the works by Vallabhacharya have been enumerated with short introductory notes on them.

¹ *Vide* Remarks on 'Vallabhacharyaji's Life,' App. IV. 10.

² *Vide* note on Kanakābhiṣēka, A. I. 91.

One great deficiency of this biography is the lack of scientific method. Quotations from contemporary writings have not been amply given nor even the authorities, on which this biography rests, have been cited anywhere. The book seems to be based mainly on the Vārtās¹, Vacanāmṛtas² and some biographies³ of Vallabha written in Sanskrit. Some of the details embodied in the book may now and again be questioned by historical investigators yet its real worth cannot be underestimated. It is a very useful contribution to the historical side of the Mārga.

16. Śrī Gokulesh nu Jīvan Caritra⁴ (in two parts).—By Magan Lal Gandhi, B.A.; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1978 V.E. This is a detailed biography of Goswami Gokul Nathji, the fourth son of Vitthaleshwar and the writer of so many Vārtās (Caurāsī and others) and Vacanāmṛtas. The first part consists of twenty chapters purporting to give lengthy descriptions of Gokulesha's Bāla Līlā, Kaumāra Līlā and some of his tours. The first two chapters deal with an account of the life and lineage of Vallabhacharya and Vitthaleshwar in order to adjoin the connecting link.

The second part is exclusively devoted to a narration of the Mālā Prasaṅga⁵ incident so closely connected with the life of Gokul Nathji. In the

¹ *Vide* App. II. 6, 7-8.

² *Vide* A. II. 10, 11, 12, 13 and A. III. 7, 8.

³ *Vide* App. I. 91, 92, 93 and 94.

⁴ *Vide* A. II. 6, 7-8, 9, 10, 11, 12, 13 and A. III. 7, 8.

⁵ *Vide* A. III. 24.

course of this *Mālā Prasāṅga*¹ an interview of Gokulesh with Emperor Jahangir has been mentioned culminating in the defeat of Chidrupa Sannyasin and the revocation of Jahangir's orders. The second part consists of sixteen chapters.

This is the only life of Gokul Nathji in printed form. The writer is quite silent about the sources and authorities on which this biography has been based. The historical incidents, important as they

¹ The story of *Mālā Prasāṅga* connected with Gokul Nathji is quite current among and finds favour with the Puṣṭimārgiṇa Vaiṣṇavas. The story runs that a certain ascetic named Chidrupa (चिद्रूप सेन्यासी) in the strain of his bigotry greatly objected to the wearing of rosaries made of the holy basil tree (हुलसी माला) and the affixation of distinctive religious marks (तिलक) on foreheads by Vaiṣṇavas. It is said that somehow this Chidrupa Sannyasin greatly impressed Emperor Jahangir and became a favourite with him. At his instance Jahangir is said to have promulgated an ordinance prohibiting the wearing of Tulsīmālā and the use of Vaiṣṇava Tilak, religious marks of Vaiṣṇavas, in Goverdhan where stood the shrine of Śrī Nathji at the time of Gokul Nath. Following from this strange order of the Emperor most of the Vaiṣṇavas, it is said, had begun to vacate Gokul and Goverdhan. Under the royal orders even Śrī Nathjī was not to be decorated with Tulsīmālā, etc. Gokul Nathji like other Vaiṣṇavas felt very much aggrieved at this remorseful attack on Vaiṣṇavism. He immediately hurried to Kashmir to seek an interview with Jahangir. The interview having been granted a religious debate was arranged between Gokul Nath and Chidrupa Sannyasin in Kashmir. Gokul Nathji with his vast knowledge of the Vedas and the Upaniṣads proved far superior to Chidrupa in giving arguments in favour of the wearing of a Tulsīmālā and other Vaiṣṇavite marks of devotees. Chidrupa sustained a defeat in this contest and Jahangir, not only convinced of the strong arguments of Gokul Nath but also of his saintliness and devout devotion, revoked his aforesaid orders. Since then Gokul Nathji was hailed most gratefully as the defender and the protector of the faith of the Puṣṭimārga which had been faced with a serious onslaught.

are, have not been supported by contemporary writings. The *Mālā Prasaṅga*, curious as it may seem, does not appear to be a concocted legend since it has a very powerful tradition behind it and it is more than probable that some of the hitherto unpublished manuscripts might have mentioned that incident. Besides throwing light on the historical side of the *Mārga* the book furnishes new material for the history of the Hindi Literature.

17. Śrī Purushottamji Mahārāja nu Caritra.—By Hari Shanker Onkarji Shastri; published by Śuddhādvaita Karyalaya, 1748, Raja Mehta nī Pōl, Ahmedabad, 1985 V.E. This is a biographical sketch of the life of Goswami Purushottamji, the mighty scholar of the Puṣṭimārga, renowned for his high learning and keen insight into the different branches of Indian philosophy. By his learned commentary on Aṇu Bhāṣya, Purushottamji had acted as the chief incentive to promote the popularity of the *Mārga*. The independent writings of Purushottamji along with his commentaries on the different works of Vallabha-charya have been enumerated in the present paper. The book contains a description of the religious disputations encountered by Purushottamji with the representatives of other schools of religious thought.
18. Śrī Goverdhan Nathji nā Prākṛṭya nī Vārtā.¹—Published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad. This little treatise purports to relate the story associated with the divine manifestation of the idol of Śrī Nāthjī on the Goverdhan Hill.

¹ This is practically a Gujarati version of Śrī Nāthjī kī Prākṛṭya Vārtā in Braj Bhaṣā. Vide A. II. 23, A. III. 23.

It also contains a connected account of Śrī Nāthjī beginning from its installation in the shrine at Goverdhan to its subsequent removal to the present site at Nathdwara in Mewar.

19. Śrī Kṛṣṇa Līlāmṛta.—By Lallu Bhai Prana Vallabhdas Parekh; printed at the Union Printing Press Company, Ltd., Ahmedabad, 1909 A.D. This is a detailed life of Lord Kṛṣṇa closely sketched on the lines of Subōdhinī, the commentary by Vallabhacharya on Śrīmad Bhāgawata. There are in all thirty-one chapters in this valuable treatise. Since it closely follows Subōdhinī it will be an immense help in giving a clear and correct conception of Lord Kṛṣṇa in the Mārga.
20. Rasēsha Śrī Kṛṣṇa anē Śrī Kṛṣṇa Caritra.—By J. G. Shah, M.A.; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1928 A. D. This is one of the finest works ever written on the life of Lord Kṛṣṇa. It gives a critical and scientific treatment to the whole subject connected with the career of Kṛṣṇa. There are two sections in this book, the first consisting of fourteen chapters and the second of twenty-five chapters. The second section of the book deals with the life of Kṛṣṇa—his sports in Braj Bhūmi with the Gopas and Gopis, his feats and ultimately his accession to the throne of Muttra by killing the villain king Kansa—as depicted in the Subōdhinī, the Puṣṭimārgīya commentary on Bhāgawata by Vallabhacharya.

The first section is specially very important and instructive. In it the learned writer has discussed at full length such general topics as the significance of the word Kṛṣṇa, the conception of Rādhā as derived from the Śāstras, the self-abandonment of the Gopis, the innocence of Rāsa Līlā, Kṛṣṇa in

the Vedas, so on and so forth. The arguments have been chiefly based on the authorities of the Vedas and the Upaniṣads. The writer seems to have exhausted all available materials on the subject and his inferences, which flow out of sound logic, are quite convincing, although contrary views may be held by different scholars on this subject. In his defence of Kṛṣṇa's sports¹ with Gopis the writer holds that the Bhāgawatakār Vedavyas seems to have depicted everything concerning Kṛṣṇa allegorically and that as such his sports and dalliance of love with the Gopis should be understood in the light of religious implications.

21. Bhakta Kavi Śrī Daya Ram Bhai nu Jīvana Caritra—
By Shanker Prasad Chagan Lal Ravala; published by Narayandas Parmananddas Shah, C. P. Tank Road, Bombay, 1920 A.D.. This is a biographical sketch of the life of Daya Ram, a well reputed Gujarati poet of the Mārga.
22. Bhakta Kavi Śrī Daya Ram Bhai nu Autāra Jivana athavā Divya Aksharadēha.—By Mul Chand Tulsidas

¹ The following remarks by George Grierson taken from his introduction to the Satsai of Bihari Lal deserve attention on this subject—

Hence the soul's devotion to the Deity is pictured by Radha's self-abandonment to her beloved Krishna and all the hot-blood of oriental passion is encouraged to pour forth one mighty flood of praise and prayer to the Infinite Creator who wants, with loving outstretched arms, to receive the worshipper into his bosom and to convey him safely to eternal rest across the seemingly shoreless ocean of existence. I am persuaded that no indecent thought entered their minds when they wrote these burning words; and to those, who would protest as I have often heard the protest made, against using, the images of the lubunar(?) in dealing with the most sacred mysteries of the soul, I can only answer—

Wer den Dichter will versthen
Muss in Dichters Lande gehen.

Telivala, B.A., LL. B., and Prof. Jetha Lal Goverdhandas Shah, M.A.; published by Narayandas Parmananddas Shah, Madhava Bagh, Bombay, 1931 A.D. This work purports to give a critical estimate of Daya Ram as a poet and as a Bhakta. The religious thoughts of Daya Ram including his conception of Bhakti, God and Universe have been discussed at full length supported by the writings of the poet itself. Besides discussing the poetical merits the learned writers have also examined Daya Ram's treatment of love between Rādhā and Kṛṣṇa in the light of the sublime sentiment of love.

23. Śrī Nāthjī nō Itihāsa¹.—Published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1985 V.E. This small treatise is a compilation of different writings about Śrī Nāthjī. The पीठिका भावना (the significance of a pedestal kept near the image of Śrī Nāthjī) by Gopeshwarji and the चिह्नवर्णन (a description of the different marks on the idol of Śrī Nāthjī with their significance) by Hari Raiji have been incorporated in the book in their original texts. There is also an article on Śrī Nāthjī by J. G. Shah, M.A., in Gujarati and in the end a short historical account of Śrī Nāthjī has been narrated occasionally supported by the remarks of Growse and Todd. The whole subject-matter of this treatise is jumbled up and lacks systematic historical treatment.
24. Puṣṭimārga nō Itihāsa.—Published by Vasant Ram Hari Krishna Shastri, Raja Mehta nī Pōla, Ahmedabad, Second Edition, 1933. This treatise

¹ Vide A. II, 23, A. III, 18.

is a compilation of different articles connected with some historical aspects of the Puṣṭimārga, written by Prof. J. G. Shah, M.A., Prof. Govind Lal Bhatt, M.A., Ram Lal Chunni Lal Modi, M.T. Telivala, B.A., LL.B., Lallu Bhai Chagan Lal Desai, Vasant Ram Shastri and some other writers. It purports to give historical sketches of the lives of Vallabhacharya, Vitthala Nath and Gokul Nathji, based on all the available authorities,¹ whether in Sanskrit, Hindi, Gujarati or English. The latest researches on the theory of Kanakābhiṣeka² and other incidents connected with the life of Vallabhacharya have been incorporated in the book. The book is full of quotations from various historical treatises on the Mārga but no cogent treatment has been given to them in order to build up a connected account of the Sampradāya with reference to its gradual evolution. The Gujarati version of the Imperial Firmans³ granted to the descendants of Vallabhacharya by the different Mogul Emperors has been embodied in this treatise along with a genealogical table of the Tilakayats (the first house of Āchārya in the Vallabha Sampradāya). All possible historical resources have been utilised in favour of the incident of Mālā Prasaṅga⁴ connected with Gokul Nathji and it has been argued that just as many historical incidents connected with the raids of Mahmud Ghazanavi and others find support in strong traditional evidences similarly the Mālā Prasaṅga should be treated as an authentic historical

¹ *Vide* A. I. 91, 92, 93, 94, A. II. 21, 22, A. III. 15, 25, A. IV. 10.

² *Vide* Remarks on Kanakābhiṣeka App. I. 91, A. III. 25.

³ *Vide* Remarks on Imperial Firmans App. IV. 11.

⁴ *Vide* Remarks on Mālā Prasaṅga App. III. 16.

fact. This treatise will undoubtedly be of immense help to a historian of the Puṣṭimārga.

25. Kanakābhiṣēka nō Itihāsa.¹—Written, compiled and published by Lallu Lal Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1932 A.D. This is only a reproduction of an article on Kanakābhiṣēka embodied in the book entitled Puṣṭimārga nō Itihāsa. All the available material seems to have been exhausted in support of the Kanakābhiṣēka ceremony performed by Krishna Deva Raja Vijayanagar in honour of Vallabhacharya.
26. Vaiṣṇava Narēśō.—Fy V. H. Shastri, Y. K. Shastri and L. C. Desai; published by Vasant Ram Hari Krishna Shastri, Raja Mehta nī Pōla, Ahmedabad, 1930. This small treatise contains short biographical sketches of some of the past and present rulers of Udaipur, Bharatpur, Krishna Garh and Lakhtar who have professed staunch faith in the Puṣṭimārga and its doctrines.
27. Tīrtha Yātrā nō Hēvāla.—By Chandu Lal Keshava Lal Shah, B.A.; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1921 A.D. This treatise embodies a detailed description of different pilgrimages all over India, especially meant for the Puṣṭimārgīya Vaiṣṇavas. The chief seats of the Mārga—Nathdwara, Kankaroli and others—have been assigned a comparatively lengthy treatment.
28. Kāmākhyadōṣa Vivaraṇa.—By G. Hari Raiji; published with Gujarati commentary by Lallu Bhai Pran Vallabhadas Parekha, formerly Judge, Small Cause Court, Ahmedabad 1910 A.D., The Kāmākhyadōṣa Vivaraṇa is a small treatise consisting of 31 verses in Sanskrit composed by G. Hari

¹ *Vide* Remarks on Kanakābhiṣēka App. I 91 and A. III. 24.

Raiji purporting to enumerate the miseries that befall through harbouring a love for sensual enjoyment. The present work incorporates the original text in Sanskrit and its literal translation supplemented with exhaustive explanatory notes in Gujarati.

29. Śri Goverdhanāṣṭaka, Giri Rāja Nāmāvali and Giri Raja Bhuṣaṇa Grantha.—The first two works are compositions of G. Dwarakeshji and the last one that of Giradhar Das; Gujarati translation is of Giri Rāja Bhuṣaṇa Grantha only; translated by Narsinghadas Bhāṇaji Brahma Bhatt; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1977 V. E. This is a collection of three separate works extolling the greatness and sublimity of the Goverdhan Hill in a devotional strain. The first two are very small treatises in Sanskrit while the third one is a composition in Braj Bhāṣā chiefly in Dōhā and Caupāi metres by the famous Hindi poet Girdhardas of Kundaliyā-fame. This poem deals with the story associated with Kṛṣṇa's uplifting of the Goverdhan Hill in his attempt to protect the Gopas (cowherds) and their cattle from the ruinous effects of the Indra's wrath (Indra is the God of the firmament and the King of the Hindu paradise). A Gujarati translation of this poem has been embodied in the present compilation.
30. Śri Vallabhākhyāna¹ tathā Mūla Puruṣa.—Published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad, 1977 V.E. This is a compilation of two separate works dealing with the life of Vallabhacharya. The first has been composed by the famous Gujarati poet Gopal Das and the second in

¹ Vide Remarks on Vallabhākhyāna App. II. 28.

Braj Bhāṣā verses by Dwarakeshji. The Vallabhā-khyāna is a panegyric written in a lyrical strain without giving any systematic treatment to the events connected with the life of Vallabhacharya while the Mūla Puruṣa, on the other hand, gives a chronological description with dates and years of the incidents associated with the life of Vallabhacharya.

APPENDIX IV

Literature for the Study of the Puṣṭimārga in English :—

1. A Primer of Aṇu Bhāṣya.¹—By Jetha Lal Goverdhan Lal Shah, M.A.; published by Mohan Lal Lallu Bhai Shah, Puṣṭimārgīya Library, Nadiad (1927). In this small compilation Mr. Shah has brought out the salient features of the system of philosophy as presented in the Aṇu Bhāṣya. The writer has confined himself to an elucidation of the doctrines of Vallabhacharya without following a comparative method of examining them in the light of other schools of philosophy. Although the book does not claim to give an exhaustive treatment of the subject yet this is the first book in English giving a complete analytical treatment of the Śuddhādvaita system. In the first few chapters the writer has discussed critically such questions as the interpretations put on the name 'Aṇu Bhāṣya', the theory of its joint-authorship, etc.
2. Tatvadīpa Nibandha² (Shāstrārtha Prakaraṇa).—Edited by J. G. Shah, M.A., and H. O. Shastri; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1926). This is only the first part of Tatvadīpa Nibandha, which consists of the Kārikās and of the Prakāśa on them. To meet the requirements of students it has been edited with English notes and a Gujarati translation on all the Kārikās of the first chapter, Tatvadīpa Nibandha.

¹ *Vide* Remarks on Aṇu Bhāṣya A. I. 5, A. III. 1, A. IV. 8, 9.

² *Vide* Remarks on Tatvadīpa Nibandha A. I. 1 and A. II. 1.

3. Śuddhādvaita Mārtanḍa.¹—Translated and annotated in English by J. G. Shah, M.A.; published by Puṣṭimārgīya Vaiṣṇava Maha Sabha, 110, Richey Road, Ahmedabad, (1928). Girdharji's Śuddhādvaita Mārtanḍa (A. I. 80) occupies a prominent place amongst the philosophical works on the Mārga. Mr. J. G. Shah has done a great service to the Mārga by translating the present work in English, thus making it accessible to the modern students of philosophy. After giving a literal translation of the verses with short notes on difficult words Mr. Shah has appended his comments on them in order to make them perfectly intelligible. It can, however, be said that Mr. Shah has deliberately avoided scholastic discussions in this little book and his chief object is to present the book in its bare outline before an average student.
4. The Sujña Gokulji Zala Vēdānta Prize-Essay for the year 1915 "Discuss how far Śaṅkaracharya truly represents the view of the author of Brahma Sutras."—By M. T. Telivala, B.A., LL.B., Vakil, High Court; published by Ranchordas Varjivandas Petladi, Madhaya Bhuvan, Bombay (Second Edition, 1928). This essay was selected by the University of Bombay for the Sujña Gokulji Zala Vēdānta Prize, 1915. Dr. Bhandarkar², Dr. Thibeaup³ and other

¹ Vide Remarks on Śuddhādvaita Mārtanḍa A. I. 80, 88, A. II. 5.

² Dr. Bhandarkar remarks—"He (Śaṅkara) denies his (Brahman's) being the material cause of the world. All the Sutras of Bādarāyaṇa which set forth that doctrine have been interpreted by him in an entirely different way. Probably he would have set aside the Brahma Sutras altogether, but he could not do so, since

oriental scholars have long ago expressed the opinion that Śaṅkara does not give a correct interpretation of Bādarāyaṇa's views in the Brahma Sūtras and that he superimposes his views on Bādarāyaṇa. The writer of the present essay has examined Śaṅkara's views in an unbiassed manner by clearly showing that Śaṅkara has at many places attributed to Bādarāyaṇa such doctrines which possibly Bādarāyaṇa could never have dreamt of. After this the learned writer proceeds to elucidate the exact significance of the Brahma Sūtras on the authority of the Aṇu Bhāṣya, which, according to the writer, gives the doctrine of Bādarāyaṇa in its true perspective.¹ Incidentally the author has put

the work had acquired an uncontested authoritativeness as regards religious truth before his time. He had therefore to show that his system did not go against the Brahma Sūtras and therefore accepted them and interpreted them in almost a fantastic manner. Texts from the Upaniṣads, too, which do not agree with his doctrines he treats similarly." (Vaiṣṇavism-Śaivism, p. 58.)

³ Dr. Thibeu says :—

The Sūtras 'do not, with Śaṅkara, proclaim the absolute identity of the individual and the highest self.' (Introduction to Vedānta Sūtra I, p. 100.)

¹ 'The spirit of Śaṅkara's system is certainly pessimistic. His imagining the existence of दुःख in the आनन्दमय, his declaring that activity is दुःखरूप, and a preference for the negative श्रुति's, tend to the same conclusion. His rejection of आनन्दमय's Brahmanhood, and imagining the existence of misery in it have been the subject of an almost bitter remark (अत एव सत्यपि यत् तद्विचारेणानन्दमये दुःखास्तित्वकथनं तद् ग्रन्थकृतो महादुःखसंस्कारस्य प्राबल्यमेव गमयतीति दिक्। Aṇu Bhāṣya Prakāśa, Benares Sanskrit Series, pp. 198, 199—quotation within brackets mine, G.) of Vallabha's commentator. From the way in which he defines his conception of Brahman, by negating everything of it except its existence, and declaring Brahman to be अविषय, he makes it difficult, if not impossible, to distinguish his system from Buddhism, and it appears that his system has evolved in a transition period when the Buddhist doctrine of void was being driven out of the field.' (Zala Prize-Essay, p. 93.)

forth the views of Ramanuja, Nimbarka and other commentators of the Brahma Sutras. The essay reflects not only the deep study and high learning of the author but also his great hold on the philosophical system of the Puṣṭimārga.

5. A Bird's Eye-View of Puṣṭimārga—By Natwar Lal Gokal Das Shah, B.A., Dholka; published by J. G. Shah, M.A., Puṣṭimārgīya Vaiṣṇava Maha Sabha, Ahmedabad, 1930. This is a small treatise written mainly with the object of throwing a rational light on the teachings of Vallabhacharya. In the preface of the book the writer remarks that pure reasoning and not sentiment should be the best criterion for the exposition of philosophical systems and it must be admitted that the writer has adhered to this principle of his. The book does not enter into minute philosophical discussions about the different schools of philosophy but here and there we do meet with certain sweeping remarks on Śaṅkara's and Buddha's systems of religious thought. We do not find any scholarly treatment of the subject in the work; and perhaps it was not meant for that. Nevertheless the book will be found interesting by a general reader. The chapters on 'Behind Śri Kṛṣṇa's sports' and 'Vallabhacharyaji, A Great Reformer' do reveal some independent thinking of the writer but they shall have to be weighed on historical testimony. The following remarks on 'Rās Līlā'¹ (circuitous dance) will be found interesting—'Just as an illegal act is avoided through fear of legal adjudication, similarly an immoral act is abandoned through fear of public censure. But Gopis and Shri Krishna did never hide their meetings and the husbands of Gopis

¹ *Vide* A. II, 20.

never objected to it. Not only that, but the husbands of Gopis had become Shri Krishna's friends. This state of affairs is a *prima facie* proof of Rās Līlā's innocence. It was not made a subject of public censure. If it were to be an immoral act, the people of high moral sense of that age would not have tolerated it any more' (p. 56).

'Thus the idea of realisation of one's own true nature, *i.e.*, the realisation of 'Ānand' of within is behind the 'Rāsa' sport of Sri Krishna and Gopis' (page 69).

6. Vaiṣṇavism, Śaivism and minor religious systems (Encyclopaedia of Indo-Aryan Research).—By Sir R. G. Bhandarkar, 1913. In the chapter on Vaiṣṇavism Dr. Bhandarkar has devoted a short space of two pages to a discussion on the philosophical tenets of the Puṣṭimārga and its modes of worship. Only some broad principles of the Puṣṭimārga have been sketched and the writer's remarks on the modes of worship prevalent in Puṣṭimārga shall have to be weighed on the strength of the Puṣṭimārgīya literature. For instance his sweeping remark that Vallabha's mode of worship was more dramatic than emotional does not at all seem convincing. In fact the mode of worship followed at the shrine of Śri Nāthjī by Vallabhacharya was of a very simple character and it was Vitthaleshwar who afterwards brought in all the paraphernalia in the performance of the daily worship. The aesthetic element introduced by Vitthaleshwar was in conformity with the fundamental principles of Sevāprakāra enunciated in the Bhāgawata and it only served as an impetus to the development of the emotional side. The following remarks by Mr. Telivala may be observed in this connection—

'Dr. Bhandarkar's remark was rather due to the learned scholar's unfamiliarity with or distant acquaintance from hearsay evidence about the Sēvā-prakāra followed in Puṣṭimārgīya temples. Our own experience of the temples of Ramanujas, Madhvas, Godias and the chief shrines of Jagannatha and Vitthala leads us to the inevitable conclusion that in the mode of Krishna-worship Vitthaleshwar's position is unique and unrivalled. This fact was whole-heartedly acknowledged by one great Vaiṣṇava teacher Swami Narayana of Gujerat when he speaks of Vitthaleshwar as the king of Vaiṣṇava teachers in his शिक्षा पत्री, where he preaches his followers to follow the mode of worship as laid down by Vitthaleshwar. The fact is that the Sēvā prakāra was modelled to develop the finer sentiments of the human heart, and to term it dramatic would certainly do injustice to the great Āchārya. Experience has proved that by following this Sēvā-prakāra the devotees not only forgot the bonds of Sansāra but it helped them in feeling the living presence of the deity. In actual practice flaws might be noticed, the ideal set up by Vitthaleshwar might not be attained, but to term the whole Sēvā-prakāra as dramatic is rather an abuse of language.' (Introduction to Anu Bhāṣya Prakāśa Raśmi, p. 15.)

7. Indian Historical Quarterly of Calcutta, Nov.-Dec., 1932.
—In this magazine there is an article entitled 'The Puṣṭimārga of Vallabhacharya' by Prof. G. N. Bhatt, M.A. This gives a critical survey of the Mārga from a rationalistic and not sectarian point of view.
8. Proceedings of the Oriental Conference held at Allahabad in 1926.—There is a paper read in this

conference on the 'Double-Authorship of Aṇu Bhāṣya'¹ by Prof. G. N. Bhatt, M.A., of the Baroda College. The theory of the joint-authorship of Aṇu Bhāṣya has been echoed since the time of Purushottamji, the learned commentator on Aṇu Bhāṣya. In the present article the writer has very ably supported his arguments on the authority of internal as well as external evidences.

9. Śrīmad Brahma Sutrāṇu Bhāṣyam,² Vol. III, 1st Pāda and 4th Pāda.—Edited by Mr. Telivala, B.A., LL.B., Bombay. Mr. Telivala³ has incorporated two learned articles, one on 'Śrī Vallabhacharya and his Aṇu Bhāṣya' and the other on 'Śrī Vitthaleshwar and Aṇu Bhāṣya'⁴ in the respective introductions of the two Pādas (parts) of Vol. III, Aṇu Bhāṣya. These articles reveal the masterly genius and the creative faculty of the great scholar who was well-endowed with the rare talent of carrying on research work of a high order. The keen insight of the writer in different systems of philosophy and his all-round knowledge of the Sāṃpradāyik Gāthās are fully manifest in both these articles.

¹ *Vide* Remarks on Aṇu Bhāṣya A. I. 5, A. III. I, A. IV. 1, 9.

² *Vide* Remarks on Aṇu Bhāṣya A. I. 5, A. III. 1, A. IV. 1, 8.

³ Mr. Telivala was really a great tower of strength to the Puṣṭimārga. Mr. Woodroffe, Mr. Keith and other eminent persons had acknowledged the rising talents of Mr. Telivala. If he had been spared a few years more he would have rendered a great deal of Puṣṭimārgīya literature in English making it intelligible to universal oriental scholars. In the death of Mr. Telivala, who passed away at the age of 39 only, India in general and the Puṣṭimārga in particular has really lost a talented oriental scholar. G.

⁴ *Vide* Remarks on Imperial Farmans A. IV. 11.

10. A Short Biographical Sketch of Shreemad Vallabhacharyajee's Life¹.—By Natvarlal Gokuldas Shah, B.A.; published by Lallu Bhai Chagan Lal Desai, 110, Richey Road, Ahmedabad (1928). This is a translation into English, though not literal, of a book in Gujarati entitled Shri Vallabha Carit. (*Vide* A. III. 15.) But this is only an abbreviated edition, the original Vallabha Carit being far more extensive. In the introduction, the writer has criticised Dr. Hunter's opinion² about the date of birth assigned to Vallabhacharya which, in the words of the writer, 'is absolutely groundless and a great lie.' Perhaps this is the first book in English which gives a systematic chronological treatment of the life of Vallabhacharya. With all his efforts to be impartial the writer has not been able to fling aside the sectarian trait which has a great hold on him. Quotations from different works by Vallabhacharya have been utilised to trace a history of the period in which Vallabhacharya flourished but they have not been supported by other contemporary authorities. It would have been better if the writer had given references from such original Sanskrit works as Vallabhacharya Caritam by Murli Dhar Das, Samprādaya Pradīp by Gadadhar Dwivedi, etc. Even on the Kanakābhiṣēka incident³ the writer has not quoted any authority from the history of Vijayanagar which we should have expected from a modern biographer. We find in the book a detailed description of the different tours conducted by Vallabhacharya

¹ *Vide* Appendix I. 91, 92, 93, 94, A. II. 21, 22, A. III. 15, 24, 25.

² Dr. Hunter puts the birth-date of Vallabhacharya somewhere in the year 1520 of the Christian era.

³ *Vide* note on Kanakābhiṣēka A. I. 91, A. III 24, 25.

in order to disseminate his teachings of non-dualistic theism. In the chapter portraying the condition of India during the time of Vallabhacharya, there are certain interesting remarks which probably lack historical truths. For instance, the author observes— 'for want of sufficient might in men to protect the chastity of the ladies, the custom of keeping veils on the face when they were rarely out of the house came into existence' (page 19).

With all its deficiencies the book will, no doubt, prove very helpful to a historian writing on the revival of Bhakti Mārga in the fifteenth century.

11. Imperial Farmans¹ (A.D. 1577 to A.D. 1805).— Granted to the ancestors of His Holiness the Tikayat Maharaj of Nathdwara; translated into English, Hindi and Gujarati with notes by Krishnalal Mohanlal Jhaveri, M.A., LL. B., J. P.; published by the Vidyavibhaga, Nathdwara.² These are the royal documents or Sanads granted to Vitthaldas³ and his descendants, from time to time, by the different Mogul Emperors beginning from Akbar down to Shah Alam. There are in all seventeen plates of the Farmans, the originals of which are preserved in the record office of the Tikayat Maharaj of Nathdwara. All the Farmans bear royal seals and have been written

¹ *Vide* A. III. 24 and A. IV. 9.

² The 'Imperial Farmans' is not meant for sale and its printed copies are preserved in the custody of the Tikayat Maharaj of Nathdwara. I have to express my gratitude to Mr. Krishnalal Mohan Lal Jhaveri, who very kindly gave a copy to me when I went to Bombay in connection with my research work during 1932-33. G.

³ Vitthaldas was the second son of Vallabhacharya. He is mentioned with different names, *viz.*, Vitthaleshwar, Viithalrai, Vitthalnath, Gosain Vitthalnath, Prabhu Charaṇa, Vitthaldas, etc. The name Gosain Vitthalnath is more popular in Hindi Literature.

in Persian characters, only the last one by Lord Lake contains Hindi characters as well. The Farmans show that Akbar was so much impressed with the exalted ideal and piety of Vitthaleshwar that he made a gift of Gokul and Jatipura villages to Vitthaleshwar. No less than four Farmans have been granted to Vitthaleshwar by Akbar alone. Even Hamideh Banu Begum, the Queen-mother, granted a Farman to Vitthaleshwar in 1581 A.D. bestowing on him the privilege of grazing his cattle on all lands, Khālsā¹ or Jāgīr.² In the words of Mr. Jhaveri 'it practically gave him a *carte blanche* to graze them wherever he liked.' (Note, F. II.) This honour conferred by the Queen Mother is a rare instance in the Mogul history.³ This only goes to show on the one hand the great tolerant spirit of the Moguls and on the other the high esteem in which Vitthaleshwar was held. Here is the English version of one of the Farmans:—

“The Farman of Jalaluddin Mohammad Akbar Badshah, Ghazi—

At this time, an Exalted Farman, significant of good Fortune found the honour of issue, (to the effect) that as the Mowzah of Gokul together with the Guzar Ghat in the Paraganah of Mahavan has been settled and entrusted (given over) to Goswami Vitthal Rai, in perpetuity (descendant after descendant) for the expenses of the Thakurdwar (idol temple), an (this) order (which should be) obeyed by the world has secured the honour of publicity,

¹ Khalsa is “land held immediately from Government.”

² Jagir is “land given by Government as a reward for services or as a fee.”

³ ‘There are hardly any instances of grants made by Mogul Emperors being confirmed or ratified by their mothers.’—K. M. Jhaveri (Preface to Imperial Firmans).

that all civil officers, Jagirdars, Karoris, Revenue Collectors, and Chaudharies should strive to act according to the Exalted Order and allow the above-mentioned Mowzah together with the ford (passage) [to remain] in the possession of the above said (individual); they should not change or alter it in the slightest degree, and they should not worry him with demands of land taxes, or imposts on manufacturers, or any kind of capitation tax, or extraordinary contribution or civil levies (dues) or Imperial demands, considering him absolved from all these. They should not call for a (new) Farman or Parwaneh from him every year so that the above-mentioned person having become contented with his condition on account of Royal favours may engage himself in praying for the good Fortune of the (our) eternity allied kingdom.

Written on the 15th day of the month of Khardad Elahi year 38 (Saturday, 26th May (O.S.), 5th June (N.S.) A.D. 1593, 5th Ramzan, A.H. 1001, Samvat year 1651)."

Such honours themselves speak that their recipients, Vitthaleshwar and his immediate successors, must have been men of profound learning and deep-marked devotion. These Farmans¹ will, no doubt,

¹ It is a pity that such valuable historical documents are not released to the press without a certain degree of hesitation on the part of the orthodox section of our society. In the course of my research work, carried on at Nathdwara in 1932-33, I came across certain other Farmans (not incorporated in the present book) in manuscript form granted to His Holiness the Tilkayat Maharaja of Nathdwara by some Governor-Generals and Native States. Much valuable information can be gathered if they are also published. These Farmans will only enhance the respect of the Puṣṭimārga in the eye of an ordinary reader. It is high time that all such material is published. G.

furnish some new material for the history of the Mārga, specially of the Tilkayat Maharajas. While they throw a fresh light on the tolerant spirit of the Mogul Emperors (as the Farmans of Akbar were later on confirmed by Shah Jehan and other rulers of the Mogul family) they also give some valuable hints about the religious condition of India during the Mogul Period. Mr. Jhaveri's historical notes appended to the book will be found very useful for a correct understanding of these Farmans.

In the appendix is given an article on 'Vitthaleshwar and his Vidvānmaṇḍana' by the late Mr. M. T. Telivala, B.A., LL.B., of Bombay. This article is merely a reproduction of the introductory article entitled 'Śri Vitthaleshwar and Aṇu Bhāṣya' incorporated in Aṇu Bhāṣya Prakāśa Rāśmi Vol. III, 4th Pāda¹ edited by Mr. Telivala. The article is incomplete as the learned scholar suddenly passed away on the 26th June, 1927. The article as it stands gives a critical life-sketch of Vitthaleshwar and a chronological survey of some of his works; the critical remarks on Vidvānmaṇḍana or Aṇu Bhāṣya, which the author must have intended to incorporate as is evinced by the title, could not be given for reasons stated above.

12. History of Rajasthan, Vol. II—By James Todd, Calcutta, 1879. Along with other material in this book we find translations into English of different copper-plates, granted by the Udaipur Darbar, from time to time, to the Maharaj of Nathdwara, conferring upon him a gift of a number of villages with certain legal rights. The original copper-plates² are in the

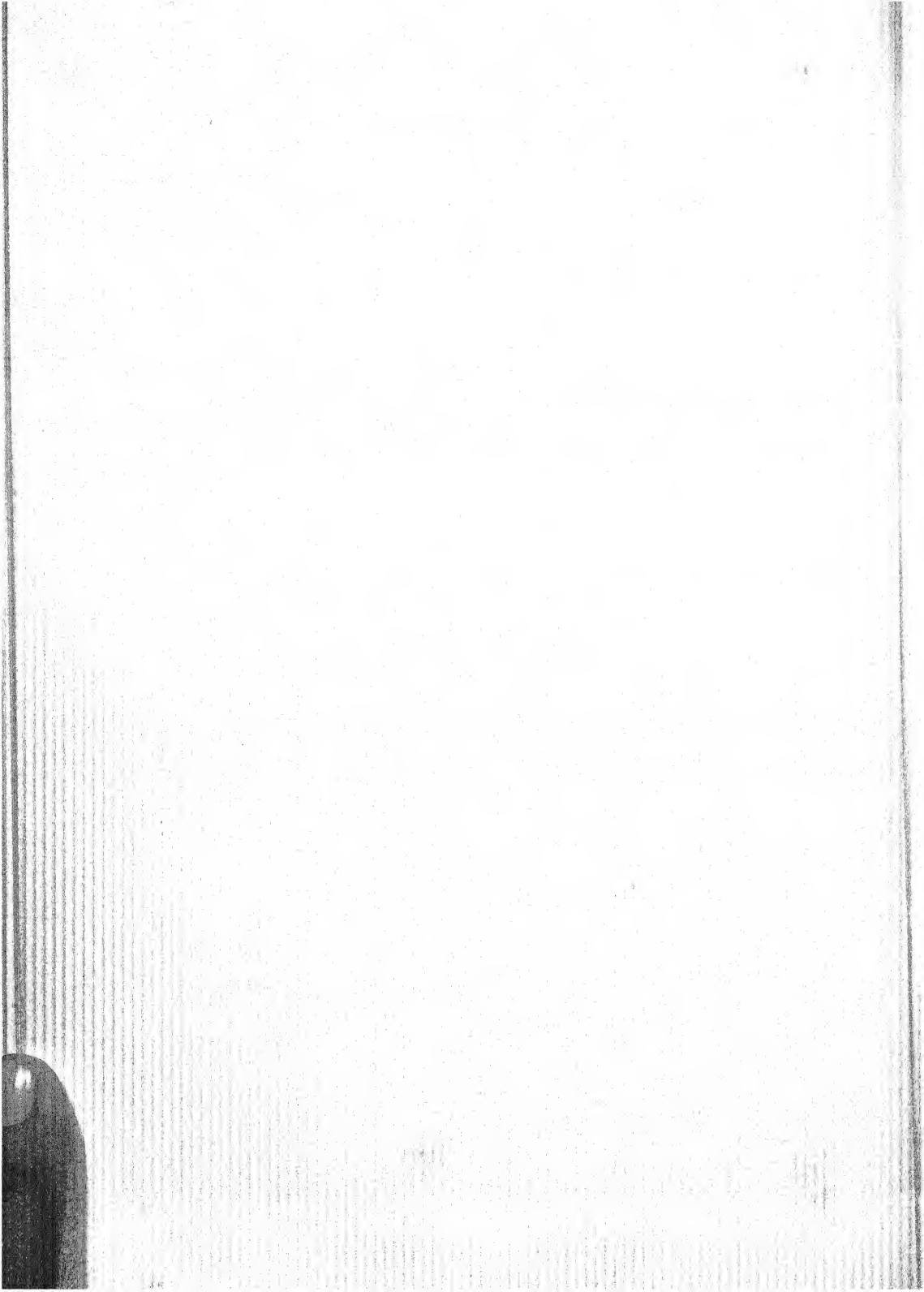
¹ Vide A. IV. 9.

² I have personally seen some of the copper-plates in their original when I visited Nathdwara in 1932-33. I have also seen a printed file in the private record office of Nathdwara embodying

Rajasthani tongue. Todd's remarks on these copper-plates are not to be taken very seriously unless testified by other reputed scholars, such as Gauri.Shanker Ojha, Vishveshwar Nath Reu and others, because, as we know, Todd has erred at many places and arrived at wrong conclusions. A study of these copper-plates will be found useful for a connected history of the Mārga.

13. Ordinary Original Civil Jurisdiction, Suit No. 218 of 1878, High Court of Bombay.—This suit contains some valuable information about the legality of the different claims set up by the Goswanis on the image of Sri Nathji. The plaintiff is the present Maharaj Sri Goverdhan Lalji and the defendant is his father Sri Govind Raiji, who was dethroned from the Gaddi (seat) by the Udaipur Darbar as a result whereof this suit arose. This suit can supply some authoritative material about the historical aspects of the Puṣṭimārga.

English translations of practically all the copper-plates in possession of the Tilkayat Maharaj. In spite of my efforts I was unable to secure any copy of that recorded file. As the file is in printed form I can easily guess that there must be quite a sufficient number of its copies. I was at first given to understand by the Maharaj himself that I would get a printed copy of these copper-plates but ultimately it seems that the Maharaj withheld it lest his political secrets might be out. G.



SECTION IV
ARABIC & PERSIAN

THE MA'ĀLĪ'L-HIMAM OF AL-JUNAYD AL-BAGHDADĪ

WITH AN INTRODUCTION

BY

HABIBULLAH KHAN GHAZANFAR, M.A.,

Research Scholar in Arabic for 1929-30.

BIBLIOGRAPHY

Abu'l-Falāḥ, *Shadharātu'l-Dhahab* (composed in A.H. 1080); Rāmpūr MS.

Abū Nu'aym of Iṣfahān (d. 1039 A.D.), *Ḥilyatu'l-Awliyā*; Rāmpūr MS. (Also Tonk MS.)

'Alī Hujwīrī (d. 1073 A.D.), *Kashfu'l-Mahjūb*, Lahore, 1923.

Al-'Asqalānī, Ibn Ḥajar (d. 1449 A.D.), *Taqrību'l-Tahdhīb*, Lucknow, 1903.

'Attār, Farīdu'l-Dīn (d. 1223 A.D.), *Tadhkiratu'l-Awliyā*; ed. Nicholson, London, 1905.

Encyclopaedia of Islam, Leyden 1913 f.

Al-Dhahabī (d. 1348 A.D.), *Mizānu'l-'Itidāl*, Egypt, 1276 A.H.

Fihrist. (See Ibnu'l-Nadīm.)

Ḥājī Khalīfa (d. 1658 A.D.), *Kashfu'l-zunūn*, ed. Fluegel, Lipsiae 1855 f. (Also the Egyptian Edition.)

Al-Ḥasan, Abu'l-Qāsim, of Nīshāpūr (d. 1016 A.D.), *al-'Uqalā'ul-Majānīn*, Egypt, 1924.

Ibnu'l-Jawzī (d. 1201 A.D.), *Talbīs Iblīs*, Delhi, 1323.

Ibn Khallikān (d. 1283 A.D.), *Wafayātu'l-A'yān*, Būlāq 1310 A.H.

Ibnu'l-Nadīm (d. 995 A.D.), *Kitābu'l-Fihrist*, ed. Fluegel, Leipzig, 1872.

Ibn Qutayba (d. 895 A.D.), *Kitābu'l-Ma'ārif*, Egypt, 1300 A.H.

Ibn Shākir (d. 1364 A.D.), *Fawātu'l-wafayāt*, Egypt, 1294 A.H.

Jāmī, *Nafahātu'l-'Uns*, Cawnpore, 1874.

Al-Junayd (d. circa 910 A.D.), *al-maqṣad ila'llāh*, MS. at Firangī Maḥall, Lucknow.

Al-Manāwī, 'Abdu'l-Ra'ūf, *al-Kawākibu'l-Durriyya fi Tarājimi Sādāti'l-Sūfiyya*, Rāmpūr MS.

Muḥammad Ḥasan Qādirī of Rāmpūr, *Tawārīkh 'Ā'ina'i Taṣawwuf*, Ḥasanī Press, Rāmpūr, 1311 A.H. (In Urdu).

Al-Qushayrī, 'Abdu'l-Karīm b. Hawāzin (d. 1073 A.D.), *al-Risāla*, Egypt, 1330 A.H.

Al-Sam'ānī, *Ansāb*, ed. Margoliouth, Gibb Mem. Series. London 1912.

Al-Sha'rānī (d. 1546, A.D.), *al-Ṭabaqātu'l-Kubrā*, Egypt 1276 A.H.

Sharar, 'Abdu'l Ḥalīm, *Junayd-i Baghdādī*, Lucknow, 1923. (In Urdu).

Sharḥ Majāni'l-Adab, Beyrout 1886.

Al-Yāfi'ī, (d. 1368 A.D.), *Mir'ātu'l-Jānān wa 'Ibratu'l-Yaqzān*, Hyderabad, 1337 A.H.

Yāqūt (d. 1229 A.D.), *Mu'jamu'l-Udabā'*, ed. Margoliouth, Gibb Mem. Series. London 1907-27.

A manuscript bearing no title but giving the chains of spiritual guides, written by the order of one Aḥmad 'Alī Shāh in 1250 A.H. (In private possession).

INTRODUCTION

THE MANUSCRIPTS

1. The MS. of the *Ma'ālī'l-Himam*,¹ the text of which I propose to edit, is in the State Library, Rāmpūr, U. P. and bears no. 313 of *Sulūk* (Arabic Section). It is in *Naskh* and seems to have been written by two scribes at least, the first of whom is a careful scribe, whose writing is clear and legible, and contains very few slips of very slight nature, while the other is less careful and makes comparatively a larger number of mistakes. But on the whole the MS. is legibly written.

The colophon contains neither a date nor the name of the scribe. In the margin of folio 9b, however, there is to be found a note by one Shāh 'Abdu'l-Rasūl which runs:—

فَعَلِمَ مِنْ هَذَا أَنَّ أَهْلَ النَّارِ أَكْثَرُ مِنْ أَهْلِ الْجَنَّةِ مَعْرِفَةً وَ كَمَالَ
الْمَعْرِفَةِ التَّامَّةِ لِأَهْلِ الْأَعْرَافِ وَ الْكُتُبِ وَ فَوْقَهُ مَقَامُ الْمَكْمُودِ وَ هُوَ لِرَجُلٍ
وَاحِدٍ وَ فَوْقَهُ ذَاتُ الْحَقِّ الْمَتَّعِلِ وَ مَا بَعْدَهُ إِلَّا الْعَدَمُ وَ الظُّلْمَةُ
الْمَكْصُوفَةُ - مِنْ شَاشَةِ عَبْدِ الرَّسُولِ نُورِ الْمَلِكِ قَلْبِهِ -

“From this it is known that God's recognition by those in Hell is clearer than those in Paradise. And the recognition by those in the Purgatory is the most profound. And above this there is the “*Illustrious place*” which is reserved for one man only. And above it there is God and beyond him there is nothing but nothingness and complete darkness.

“By Shāh 'Abdu'l-Rasūl—May God enlighten his heart.”

To this Shāh 'Abdu'l-Rasūl, I could find only one reference in a pedigree preserved in the private collection of Bāqir

¹ The catalogue and the slip bear the title “*Ma'ānī'l-Himma*” which is based apparently on incorrect reading.

Ridā Khān of Rāmpūr. It contains 54 folios and was written by the order of one Aḥmad 'Alī Shāh, *alias* Fidā 'Alī Shāh in 1250 A.H./1828 A.D. and was handed over to his disciple Qurbān 'Alī Shāh, *alias* Nabī Bakhsh. The name of Shāh 'Abdu'l-Rasūl occurs ten times, on folios 9, 12, 17, 21, 28, 29, 30, 32, 34, and 35. The whole genealogy runs thus :—

(1) Aḥmad 'Alī Shāh, (2) Muḥammad 'Alī Shāh, (3) Ghulām Pīr, (4) Ghulām Nabī, (5) Makhdūm 'Ālam, (6) Shāh 'Abdu'l-Rasūl, (7) 'Abdu'l-Raḥmān Chishtī, (8) Shaykh Hāmid Quṭbu'l-Dīn, (9) Pīr bin Awliyā, (10) Muḥammad 'Ārif, (11) Ārif Aḥmad, (12) Aḥmad 'Abdu'l-Ḥaqq, (13) Jalālu'l-Dīn Turk of Pānipat, (14) Shamsu'l-Dīn Turk, and (15) 'Alā'u'l-Dīn 'Alī Aḥmad Šābir.

It is known with certainty that Šābir, the progenitor, flourished in the early fourteenth century, while Aḥmad 'Alī Shāh, the last of the line, lived in the early nineteenth. It means that 15 generations covered the period of 5 centuries—three generations to a century. Calculating on this datum, it may be asserted that Shāh 'Abdu'l-Rasūl must have flourished in the early seventeenth century. If the marginal note was made by the same Shāh 'Abdu'l-Rasūl, for which little doubt may be entertained, as no other person of the same name is traceable, we can conclude that the MS. was written in the latter half of the 16th century and not later than the beginning of the 17th.

2. Another copy of the *Ma'ālī'l-Himam* is in a library at Mawṣil,¹ which was written in 1050 A.H./1620 A.D. This copy has not been available to me.

The book is ascribed to al-Junayd of Baghdād, who flourished in the third century of the Hijra, and notices of

¹ Da'ūd Chalipī, *Makhtūfāt Mawṣil*, p. 89.

whose life are to be found in the works of Ibn Khallikān and Yāfi'ī, both of whom are reliable authorities. Their accounts of his life are brief and also contain a few anecdotes. The Ṣūfī writers al-Qushayrī, al-Hujwīrī and Jāmī have also given short accounts mostly of a historical character. 'Aṭṭār gives in his *Tadhkiratu'l-Awliyā* a number of anecdotes and disconnected sayings of Junayd.¹

LIFE OF THE AUTHOR

Abu'l-Qāsim al-Junayd b. Muḥammad b. al-Junayd of Baghdād is said to have been a silk-merchant, for which reason he was known as *al-Khazzāz*. His father was a dealer in glass-ware, and so al-Junayd was known as *al-Qawārīrī*² and as *al-Zajjāj*³ also. The date of his birth is not known.⁴ He must have been born some time before 220 A.H./835 A.D., for he was already past twenty⁵ in 240 A.H./855 A.D. when his teacher Abū Thawr died.⁶

¹ There is also a book in Urdu by Muḥammad Ḥasan Qādirī of Rāmpūr, entitled *Tawārīkh Ā'ina-i Taṣawwuf*, in which some space has been given to al-Junayd, but the book is a mixture of ignorance and whim and has no historical value. According to this book al-Junayd must have lived for 178 lunar years.

² *Fihrist*, p. 18; al-Qushayrī, p. 18; Hujwīrī, p. 103; Ibn Khallikān, Vol. I, p. 117.

³ Jāmī, p. 53.

⁴ Sharar, however, records it (p. 20) as about 218 A.H./833 A.D., which is probable. According to Muḥammad Ḥasan Qādirī (p. 31) it was the 11th of Shā'bān 157 A.H./775 A.D., but this can hardly be accepted, as it is too early and makes him live for about 200 years.

⁵ Al-Qushayrī, p. 18.

⁶ *Fihrist*, p. 211, but Ibn Khallikān (Vol. I, p. 3) says that Abū Thawr died in 246 A.H. If the latter date be correct, Junayd's birth may be placed some time before 226 A.H.

The biographers of Junayd have credited him with indications of a great future before him in his boyhood, and a number of stories are related to prove that. To mention only one of the many, Junayd, when a boy of seven, had accompanied his maternal uncle al-Sarī on a pilgrimage to Makka, where they happened to be present at an assembly of four hundred Ṣufīs who were holding a discussion on "Gratitude." Every one of them expressed his views on the subject, but they could not agree on a suitable definition of Gratitude. Al-Sarī referred the matter to his young nephew, who defined it in these words, "Do not make Providence's gifts the means of disobeying Him." All present appreciated the definition and praised the boy, while al-Sarī predicted that al-Junayd had a great future before him.¹

Junayd must have been an intelligent youth to have acquired all the necessary knowledge of Jurisprudence in the prime of his life.² According to al-Qushayrī his tutor, Abū Thawr, had permitted him to deliver *fatwās* and decrees even before he had completed his twentieth year.³ He is said to have studied the system of al-Thawrī's jurisprudence.⁴ But this is highly improbable as al-Thawrī did not live so long as to teach al-Junayd his system. This assumption is probably based on the confusion between Abū Thawr and al-Thawrī.

When he had completed his education in jurisprudence, his uncle placed him in charge of Ḥārith al-Muḥāsibī—one of those five distinguished men of that age who are

¹ 'Aṭṭar, Vol. II, p. 7; Yāfī'i, Vol. II, p. 236; Jāmi, p. 53; Abu'l-Falāḥ, *Shadharāt*; al-Manāwī, Vol. I, p. 368.

² Qushayrī, p. 18; Ibn Khallikān, Vol. I, p. 117; Yāfī'i, Vol. II, p. 231; al-Manāwī, Vol. I, p. 366.

³ Qushayrī, p. 18.

⁴ Ibn Khallikān, Vol. I, p. 117.

famous as saints and theologians¹—for spiritual discipline and guidance in the early stages of his career. When al-Hārith died in 243 A.H./858 A.D.,² Muḥammad b. 'Alī al-Qaṣṣāb took charge of the young Junayd,³ who also profited for some time in the learned company of Abu'l-Kuraynī.⁴ His instruction in the domain of Ṣufism was at last consummated by his uncle al-Sarī.⁵ In quite a short period of time the young protégé had attained a position superior to that of his teacher, who maintained that it was possible for a disciple to surpass his spiritual guide, and quoted the case of al-Junayd as an instance in support of his statement.⁶

Although fully equipped to function as a pulpit preacher, Junayd seems to have been too modest to adopt that profession. Repeatedly his uncle and spiritual guide al-Sarī advised him to take to preaching; but every time he declined. In the end, however, he undertook to preach publicly on being commanded to do so by the Prophet himself, whom he believed to have seen in a dream. Once while he was addressing the public, a Christian enquirer came forward and asked him to explain the Prophet's saying, "Beware of the believer's insight, because he looks with Divine Light." اتقوا فراسة المومن فانه ينظر بنور الله. Al-Junayd meditated for a minute and then offered Islam to him. The Christian agreed and joined the fold of the faithful.⁷

¹ These five men were al-Muḥāsibī, al-Junayd, Abū Muḥammad, Abu'l-'Abbās b. 'Aṭā and 'Amr b. 'Uthmān al-Makkī (*Shadharāt*).

² Abu'l-Falāḥ, *Shadharāt*.

³ Qushayrī, p. 18.

⁴ Ibnu'l-Jawzī, p. 477.

⁵ 'Aṭṭār, Vol. II, p. 6; Qushayrī, p. 18.

⁶ *Ibid.*, Hujwīrī, p. 103.

⁷ Hujwīrī, p. 103; Ibn Khallikān, Vol. I, p. 117; Yāfi'i, Vol. II, p. 231; 'Aṭṭār, Vol. II, p. 10-11; Jāmī, p. 53; Abu'l-Falāḥ, *Shadharāt*.

Junayd is said to have been very punctual in attending the mosque for all the five congregational prayers, so much so that for twenty years he never missed a single *takbīr*.¹ Besides the prescribed and obligatory prayers, he used to offer four hundred *rak'ats* a day as supererogatory prayers, and carried on this practice continually for thirty years. Once he was asked how he had attained that saintly position and reputable honour in the world. He made no reply, but pointed to the place where he had worshipped God for thirty years.²

Al-Junayd made thirty pilgrimages to Makka on foot.³ For twenty years he took food only once a week.⁴ It must have been the closing years of the eighth decade of his life when he had to face the worst, and that he did, unlike worldly men, boldly and cheerfully. At the time of his death Muḥammad al-Ḥarīrī⁵ asked Junayd to express his dying will. He said, "After I am dead, wash my body, put my corpse into a coffin, offer prayers and bury it." All the persons present were touched by the remarks and began to weep bitterly. Abū Muḥammad asked him if he had any thing else to add. "Keep the food ready," replied Junayd, "as rich and sumptuous as if at a wedding feast, so that those who carry my bier may not go hungry after their return from the grave-yard."⁶

Then al-Junayd resumed to recite the verses of the Holy Qur'ān. Abū Muḥammad said to him, "Show mercy and do leniency to your soul." He replied, "Have you ever come across any one more needy of God's mercy than

¹ 'Aṭṭar, Vol. II, p. 10.

² Al-Qushayrī, p. 19.

³ Ibn Khallikān, Vol. I, p. 117.

⁴ Al-Manāwī, Vol. I, p. 267.

⁵ Al-Sha'rānī, p. 100; Abu'l-Falāḥ calls him al-Jazīrī.

⁶ Sha'rānī, p. 100.

myself?"¹ Then he began to recite the Qur'ān, and when he had completed it once, he began it again from the beginning. When he had reached the seventieth verse of the second *Sūra*, *al-Baqara*, he breathed his last. It was late on Friday that he died and his burial was delayed till the following morning. Thus he was buried on Saturday in the famous grave-yard *Shūniziyya* in old Baghdād by the side of his uncle and spiritual guide al-Sarī al-Saqatī.²

There is a difference of opinion regarding the exact date of his death. Al-Yāfi'ī places it in 298 A.H./911 A.D., though he considers 296 or 297 as possible.³ Ibn Khallikān gives 297 and 298.⁴ According to Jāmī it was 297, or 298, or 299.⁵

Junayd's chief disciples were Shiblī; Abu'l-'Abbās b. Surayj (a *Shāfi'ī*, jurist),² Abū 'Alī al-Daqqāq;⁶ and Abū Bakar al-Wāsiṭī.³ He never seems to have put on the coarse garment of the Sufis. Once somebody objected to his wearing the gown of theologians. He met the objection by saying, "It is the burning of the heart, and not the coarse garment, that counts."⁷

A few anecdotes so often mentioned by Junayd's biographers may be found interesting and helpful by way of illustrations of his thought and ways of life.

Once a person offered him a purse of 500 *Dinārs*. Junayd asked him if he had any thing besides that money.

¹ Abu'l-Falāḥ, *Shadhārāt*.

² *Ibid.*; al-Qushayrī, p. 19; Ibn Khallikān, Vol. I, p. 117; 'Aṭṭar, Vol. II, p. 35-36.

³ Yāfi'ī, Vol. II, p. 231.

⁴ Ibn Khallikān, Vol. I, p. 117.

⁵ *Nafahāt*, p. 53.

⁶ Qushayrī, p. 19.

⁷ 'Aṭṭar, Vol. II, p. 9.

On the man's replying in the affirmative, he asked him if he required any thing more. "Yes" was the reply. Thereupon Junayd returned the money to him, and said, "Although I do not possess any thing, yet I require nothing; while in spite of your having something you require still more. Therefore, you are better entitled to keep this money with you than any body else, as you need it more than any one else."¹

Once a thief stole away Junayd's shirt, and went to the market to sell it. Junayd happened to pass that way, and recognised his shirt while a broker was bargaining with the thief. The broker asked the seller in good faith to produce some one to prove that the shirt belonged to him. A man came forward and testified that the shirt was the vendor's property. And lo! the testifier was no less a person than Junayd himself.²

Junayd was accustomed to keep a rosary in his hand. Once a person remarked that he had passed the stage when people required rosaries. He replied, "The rosary has been a means of my approaching God; and it will be unfair on my part to discard it after reaching the final goal."³

Junayd had an intense desire of having an interview with Satan. His wish was after all realised when once Satan appeared before him in the garb of a saint. Junayd asked him why he had not prostrated himself before Adam. "God alone is worthy of being worshipped. This was the reason why I did not prostrate myself before Adam," was the reply. Junayd seemed to be satisfied with this answer at first; but after a while his inner self prompted him to say: "Thou art wrong. Hadst thou been an

¹ *Sha'rānī*, p. 99; *Attār*, Vol. II, p. 16.

² *Attār*, Vol. II, p. 18.

³ *Ibn Khallikān*, Vol. I, p. 117; *Yāfī*, Vol. II, p. 231.

obedient servant, thou wouldst have carried out His orders."¹

Once Junayd noticed a stout and sturdy man begging for alms in the streets. He felt disgusted at this and thought the man must be too lazy to take to work. In the night he saw in a dream that he was offered a dish of human flesh and was asked to eat it. He refused the offer, whereupon he was informed that traducement and eating human flesh were equally condemnable. When the morning dawned, he hurried to tender his apologies to the beggar. As Junayd approached him, the beggar recited the following verse of the *Qur'ān*:² "And it is He Who accepts the repentance of His servants and forgives their evil actions."³

Once, while passing through a street of Baghdād, Junayd heard a slave-girl singing these lines:—

إذا قلتُ أهدى الهجر لي حلال البلى
تقولين لو لا الهجر لم يطب الكب
وان قلتُ هذا القلبُ أحرقه الهوى
تقولى بنيران الهوى أشرق القلب
وان قلتُ ما أذنبت قلتُ مكجبة
حياتك ذنب لا يقاس به ذنب

"When I say: 'The separation has presented to me the garments of distress,' thou sayest (to me): 'Were there no separation, love would not have been sweet.' And when I say: 'Love has burnt this heart (of mine),' thou sayest: 'It is with the flames of love that heart is brightened'. And when I ask: 'What sin have I committed?', thou sayest in

¹ Hujwīrī, p. 104.

² *Sūra* 42, 24.

³ 'Atṭār, Vol. II, p. 16.

reply: 'Thy very existence is a sin with which no sin can be compared.'"

This was enough to throw Junayd into ecstacy. A short while after, the master of the slave-girl came out of the house and offered the girl to him. He accepted the offer with thanks, declared the slave-girl free, and introduced her to one of his friends, who took her in marriage.¹

JUNAYD'S MYSTIC THEORY

All the authorities are silent on this point, but Junayd's sayings and writings and the anecdotes connected with his life-story afford a fair field of information in this connection.

A close study of his writings and of his sayings that are found scattered throughout the Sufistic literature leads one to the inevitable conclusion that he was more a pious devotee than a mystic. For twenty years he never missed a single congregational prayer and was unfailingly present in the mosque at the first call to prayer; he made thirty pilgrimages to Makka on foot; everyday he used to offer four hundred *raka'ats* of prayer. All these things lead one to the same conclusion. He believed in practice, rather than in theory. "One's share in this world," says he, "is in proportion to one's endeavours for it, and in the next world one will get as much as one strives for it."² He seems to have possessed a correct notion of Fate and Destiny, his motto being: "Keep yourself busy with your undertakings, and do not think of what is to happen." He always exhorted the people to adhere to the right path of Islam. "There is no way to God," he used to say, "except to follow in the footsteps of the Prophet."³ That he attached great

¹ Ibn Khallikān, Vol. I, p. 117; Yāfi'i, Vol. II, p. 232; Abu'l-Falāḥ *Shadharāt*.

² The *Ma'ālī*, MS. f. 2b.

³ Ibnu'l-Jawzī, p. 10-11; al-Manāwī, Vol. I, p. 369.

importance to a sound knowledge of the *Qur'ān* and the Traditions and to strictly following the orders and injunctions of those religious sources is evident from his sayings like the following:—

(1) "One, who does not attend lectures on Traditions and has never been in the society of *Faqīhs*, misleads his followers."¹

(2) "One, who does not memorize the *Qur'ān* and does not narrate Traditions shall not be followed, as our creed is based on the *Qur'ān* and the Traditions."²

(3) "The *Qur'ān* and the Traditions are two lamps in the light of which one may go along the path safely."³

(4) According to Junayd Muslim mysticism lies in "constant hunger and abstention from the world, and not in a complicated discourse."⁴

(5) "Ecstasy busy in search of knowledge is better than knowledge sunk in ecstasy."⁵

In short, he seems to have combined in himself the qualities of a theologian and a *Ṣūfī*. He talked in terms of theology but practised asceticism. He used to put on a theologian's costume and would take food only once a week.⁶ He laid so much stress on the study of the *Qur'ān* and the Traditions, but wrote on Mysticism alone, and believed in the miraculous powers of saints.⁷ Although he was a distinguished disciple of Abū Thawr, yet instead of evolving a juristic system he founded an order of mystics, called Junaydīs after him.⁸

¹ *Al-Manāwī*, Vol. I, p. 367.

² *Ibid.*; Abu'l-Falāḥ, *Shadharāt*.

³ 'Aṭṭār, Vol. II, p. 8.

⁴ Qushayrī, p. 19.

⁵ Jāmī, p. 53.

⁶ *Al-Manāwī*, Vol. I, p. 367.

⁷ Junayd, *Ma'ālī*, Chap. IX.

⁸ Hujwīrī, p. 104.

In later days this system was termed as *Ṣaḥw*, "Sobriety" as against the *Sukr*, "Drunkenness" of Bāyazīd.¹ These terms were applied in contradiction to denote that the people of *Ṣaḥw* used to follow the precepts of Islam as laid down in the books of religion, while others were absorbed in deep meditation and hence in communion with God.

CRITICISM OF THE BOOK

A. TITLE OF THE BOOK

As already stated, the catalogue of the State Library of Rāmpūr gives the title of the Book as *Ma'ānīl-Himma*. The book, however, opens with these words الحمد لله الذى اعلى هم اصفياؤه "Praise be to God who has heightened the aspirations of His true friends," which contain the figure براعة الاستهلال thus hinting that the title should be '*Ma'ālīl-Himam*.' This is supported by the words (i) يطلع على "He knows the heights of the gnostics' aspirations," (ii) ان اصنف كتابا فى معالى الهمة "that I write a book on the heights of aspiration," and (iii) فيما ذكرنا فى هذا الكتاب من معالى الهمة و شرفها "of what we have related in this book of the heights of aspiration and its nobility." A more conclusive proof of this assertion than all these passages is the concluding passage of the book in which the scribe says : تمت (sic) كتاب معالى الهمة "the end of the book *Ma'ālīl-Himma*."

Thus the first word of the title is *Ma'ālīl* and not *Ma'ānīl*. As regards the second part of the title there is again a difference of opinion. According to the scribe of the Rāmpūr MS. it is *Himma* (in singular), while according to

¹ 'Attār, Vol. II, p. 5.

² *Ibid*, f. 1b.

³ MS., f. 1a.

⁴ *Ibid*, f. 19a.

Junayd himself,¹ the scribe of the Mawṣil MS.,² and Ḥājī Khalīfa it is *Himam* (in plural). I, therefore, regard it as *Himam* instead of *Himma*.

B. AUTHENTICITY OF THE BOOK

Scribes of the Rāmpūr and the Mawṣil MSS. along with Ḥājī Khalīfa³ ascribe the book to Abu'l-Qāsim al-Junayd, while Ibnu'l-Nadīm, the earliest and the most reliable authority, ascribes no book to him.⁴ This omission on the part of Ibnu'l-Nadīm creates some doubt about the authenticity of the *Ma'ālī* and its ascription to Junayd. This doubt is strengthened by the study of the text itself. There is one quotation from Abū Bakr al-Wāsiṭī⁵ who was Junayd's disciple and who survived him for more than twenty years; and there is an anecdote of Ḥammād al-Qurashī who was a younger contemporary of Junayd. Similarly there are quotations and anecdotes of Sarī introduced in a way that shows that the writer had no relation with him, while as a matter of fact Junayd was his nephew and disciple. On the other hand we find that he devotes a full chapter to an account of Bāyazīd, and showers praises on him. All these facts go to prove that the book was written by some one else in the name of Junayd, and a long time after him.

Allowing due credit to these objections one may say that the text contains the anecdotes and sayings of persons who had preceded Junayd or were contemporary with him, a fact which leads one to believe that there is a probability

¹ Junayd, *al-Maqṣad*, f. 78.

² Dā'ūd Chalīpī, *Makḥṭūṭāt Mawṣil*, p. 89.

³ Ḥājī Khalīfa, Vol. V, p. 613.

⁴ On the other hand he mentions the *Amthālul-Qur'ān* and the *Rasā'il* by another Junayd, and describes Abu'l Qāsim al-Junayd as a "talker on the subject" (*al-Fihrist*, p. 186).

⁵ MS. f. 9b.

of its being written in the days of Junayd. And as long as the authorship is not contested and the real author, if there be any, is not known; we cannot but ascribe it to the famous Muslim saint Junayd of Baghdād. As regards the omission on the part of Ibnu'l-Nadīm it may be explained thus. Most probably the book remained for some time in the form of notes by the author which were not known to anyone but a very few of his disciples, and it was not till after the death of Ibnu'l-Nadīm that those notes were given the shape of a book. This omission is, however, sufficient proof of the fact that no book had been publicly ascribed to Junayd till about the end of the 4th century of the Hijra. Also the manner in which Sarī has been mentioned in the book indicates that the book was arranged and edited by some one long after the death of al-Junayd. Taking all these facts into consideration, one is led to believe that the book was by al-Junayd, although it was arranged and published at a later date.

ANOTHER WORK ASCRIBED TO AL-JUNAYD.

I was surprised to find another book, *al-Maqṣad ila'llāh* ascribed to another al-Junayd al-Ḥanafī of Baghdād, by Ḥājī Khalīfa;¹ but I venture to think that *al-Maqṣad* and the *Ma'ālī* were written by one and the same man, and, after a careful study of the materials available to me, I cannot but say that both the books are by the famous saint. Abu'l-Qāsim al-Junayd of Baghdād.

A MS. copy of *al-Maqṣad* is in possession of Mawlānā Qutbu'l-Dīn 'Abdu'l-Wālī of Firangī Maḥall, Lucknow, who very kindly placed it at my disposal for a short period. It consists of 79 ff. and contains an interlinear translation of the Arabic text. Like the *Ma'ālī*, it comprises of ten

¹ Ḥājī Khalīfa, Vol. VI, p. 90.

chapters and the ninth chapter is devoted to a description of Bāyazīd's ascension. The last lines of the book, which led me to conclude that it was also written by the author of the *Ma'ālī*, run as follows:—

فان وقفتم معاشر اخواني كلما ذكرنا لكم في هذا الكتاب
 فيحّ بحّ والا ففى كتاب معالى الهمم لكم كفاية ان تعرفوا بيان
 ما ذكرنا فيه من لطائف الاشارات و جواهر مكنون العبارات
 فان وقفتم فى ولاية الله تعالى و نظرتم فيه بعين التحقيق
 وقفتم عليه انشاء الله تعالى -

C. IMPORTANCE OF THE BOOK

The earliest known work on Islamic mysticism is *Kitābu'l-Luma'* by Abū Naṣr Sarrāj who died in 378 A.H./988 A.D. Next to it come the *Hilyatu'l-Awliyā* by Abū Nu'aym of Iṣfahān who died in 430 A.H./1039 A.D., *al-Risāla* of al-Qushayrī written in 437 A.H./1046 A.D., and the *Kashfu'l-Mahjūb* of al-Hujwīrī who died in 465 A.H./1073 A.D. All these books excepting the first were written in the fifth century of Islam (1010—1107 A.D.), and the first named book was written in the last quarter of the fourth, i.e., 985 A.D. onward; while the *Ma'ālī* was written in the third century of the Hijra (816—913 A.D.), i.e., about 80 years before the earliest known book. Moreover it was written by one who is an acknowledged authority on the subject. The book, therefore, holds a high rank in the history of Islamic mysticism and its theory. It provides sure grounds and satisfactory data to investigate the development of Muslim Mysticism.

Besides the antiquity of the book, its importance lies in its comprising the theories of Junayd, one of the greatest

Sufis of Islam, who is unanimously called *Shaykh* 'l-*Mashā'ikh* "Chief of the Chiefs," and *Sayyidu* 'l-*Tā'ifa* "Lord of the Party." At the same time it gives a correct and vivid idea of the mysticism that was in vogue in those days. Consequently the theories the modern scholars have framed about Sufism will have to be modified and changed accordingly, as the angle of vision suffers a change after the study of the *Ma'āl*.

The book also introduces mystics and Sufis of that age the importance of whom has been overshadowed by their successors, and consequently their memory has gone into oblivion. Their works and words, which have been recorded in the book, will help us to widen our range of vision in the field of early development of mysticism.

D. SUMMARY OF THE BOOK

The book contains ten chapters, which bear the following headings :

I. Of Grades of Aspiration and the different kinds of people in them.

II. Of one who feels contented with the Lord regardless of this world and the here-after.

III. Of the Jealousy of Allah (Holy and Exalted is He), regarding His pure ones and His favourite lovers.

IV. Of the Youthful vigour of the Gnostics with Allah, the Mighty, the Great.

V. Of the manly courage of the Gnostics with Allah and the heights of their aspirations.

VI. Of the Charity of the Gnostics, their ways and the heights of their aspirations.

VII. Of Whatever is necessary for every one who desires to talk in the idiom of the men of aspiration.

VIII. Of the Excellence of the utterance of the Great and the Leaders of Guidance regarding the heights of aspiration.

IX. Of the utterance of Abū Yazīd al-Bistāmī (May God's mercy be on him), his good days, and the heights of his aspiration.

X. Of the State of the secret evils of self-delusion and conceit.

What the author proposes to say is briefly this. All the people of the world may be divided into three kinds, *viz.*, those who are people of this world, those who are of the next, and those who are devoted body and soul to the worship of God. Again there is another division of the people who worship God, first those who worship Him for fear of Hell, secondly those who worship Him in hope of a happy abode in Paradise, and lastly those who worship neither for fear nor for favour but for His love. It is obvious that Junayd as a true mystic should give preference and allot a high rank to the persons who devote themselves to the worship of God for His love alone.

He adds: "One who is fortunate enough to receive favours from God, should not communicate them to the worldly men but remain silent and quiet, and keep what favours he receives a secret. Every one should adapt himself to the circumstances, and one should not use a language unintelligible to the addressee and a subject beyond his understanding."

In support of these theories he has quoted sayings and anecdotes of the Sufis who had preceded him.

It must be noted, however, that the work has certain shortcomings. The author has quoted freely the sayings of a number of Saints but in mentioning the authorities for them he has unfortunately been not careful. In his narration one almost invariably fails to find the chain of the authorities, and has to be content with the name of the first in the link. He always begins with "It is related" which does not by any means seem definite enough. Besides this he does not seem to have taken the trouble of sifting the evidence

thoroughly. Again and again one comes across such anecdotes as one has reasons to disbelieve. As an illustration may be quoted the story of the Caliph, Abū Bakr, who is admittedly the first of all the Muslims to join hands with the Prophet when he had commenced his mission. But Junayd says that Abū Bakr was asked about the means of his attainment of the high position he holds, in reply to which he is made to state that before he joined the fold of Islam he had observed that the then Muslims were divided into two classes; either they were after this world or after the next, while he himself desired to have communion with God alone, and was thereby able to attain the glorious position he held.¹ This story reflects that at the time Abū Bakr joined the fold of Islam there were numerous Muslims. But this is not a fact.

A similar story is related about Ḥusayn, the son of 'Alī b. Abī Ṭālib. According to Junayd's version of it, he was studying a book with Abū 'Abdillāh, a companion of less repute, and had to rectify a mistake.² This seems highly incredible, as no written books were in vogue in those days.

AUTHORS AND DIVINES WHOSE NAMES OCCUR IN THE TEXT.

'Abdu'llāh b. 'Abdu'l-'Azīz al-'Umarī heard Traditions from Ibn Tiwāla, an unknown person as a narrator of Traditions.³ He used to pass his time in grave-yards, and upon being asked why he did so, replied: "A grave is a great warner and seclusion provides a good protection for faith." He died in 184 A.H./801 A.D. at the age of 66.⁴

¹ MS. f. 7.

² MS. f. 21.

³ Al-Manāwī, p. 226.

⁴ *Ibid.* p. 227; Yāfi'ī Vol. 1, p. 396.

Abū 'Abdillāh, a companion, an authority of al-Bukhārī in his *al-Adabū'l-Mufrad* and also in the *Sunan* of Abū Dā'ūd. There is another companion of the same *Kunya*, who appears as an authority in the *Sunan* of al-Nasā'ī.¹

Abū 'Abdillāh Sa'id b. Yazīd al-Nabbājī, belonged to the first generation of *Ṣūfīs* such as *Dhu'l-Nūn* and *Ibrāhīm b. Adham*.² Thus he must have flourished during the first half of the third century of the Hijra.

Abū Bakr Muḥammad b. Mūsā³ al-Wāsiṭī, known as *Ibnu'l-Farghānī*, was a disciple of al-Junayd of Baghdād. After having travelled extensively through many lands, he finally settled at Merv. It appears that he wanted to develop his faculties to enable him to perform miracles, but was admonished by al-Junayd who sent him a letter, commencing with these words: عافانا الله و اياك "May God keep you and us away (from miracles)." He died some time before 320 A.H./932 A.D. Abu'l-'Abbās was his disciple.⁴

Abū Ishāq al-Sijistānī. Not mentioned in any of the sources.

Abū Sa'id Aḥmad b. 'Isā, known as *al-Kharrāz*, "the Cobbler,"⁵ an inhabitant of Baghdād, was a disciple of Muḥammad b. Maṣṣur of Tūs, and had also enjoyed the company of *Dhu'l-Nūn* of Egypt, Abū 'Ubayd, al-Sarī al-Saqāṭī and Bishr al-Ḥafī.⁶ He died in 286 or 287 A.H./899 or 900 A.D.⁷

¹ Ibn Ḥajar. p. 427. There also appears (only once) the same *Kunya* in Abū Dā'ūd's *Faḍl'u'l-Ansār*, but as Ibn Ḥajar points out, it is an incorrect reading for Abū 'Ubaydillāh.

² Jāmi, p. 60.

³ Hujwiri p. 122; Jāmi, p. 112.

⁴ Jāmi, p. 112.

⁵ Hujwiri, p. 114; Jāmi, p. 49.

⁶ al-Sha'rānī, p. 107; Jāmi, p. 49.

⁷ al-Qushayrī, p. 23; al-Sha'rānī, p. 107.

Abū Sulaymān 'Abdu'l-Raḥmān b. Aḥmad b. 'Aṭīyya al-'Anṣī al-Dārānī,¹ a resident of Dārāyya, a village in the suburbs of Damascus,² was a disciple of Ma'ādh b. Jabal and used to accept a view after careful scrutiny according to the *Qur'ān* and the Traditions.³ He was called *Rayḥānu'l-Qulūb*, "the Perfume of the Hearts."⁴ Yāfi' places his death in 205 A.H./821 A.D.,⁵ while al-Manāwī⁶ and Jāmī⁷ give 215 A.H./831 A.D. as the year of his death. Ibn Khallikān gives both the dates.⁸ He was buried at his native place.⁹

Aḥmad b. Ḥarb,¹⁰ born in 176 A.H./793 A.D. at Nishāpūr, heard Traditions from the contemporaries of Sufyān b. 'Uyana, and was considered to be one of the Abdāl.¹¹ His spiritual guide was Yaḥyā b. Yaḥyā.¹² Traditionists regard him as a weak, though not altogether rejectable authority. Ibn Kidām lived in his company. He died in 234 A.H./849 A.D. when he is said to have been 58 years old.¹³

Al-'Alā' b. Ziyād, a *Tābi'ī*, is said to have heard Traditions from 'Imrān b. Ḥuṣayn, Abū Hurayra, Ma'ādh b. Jabal, Qatāda and 'Ubāda b. al-Ṣāmit.¹³ Once a person informed him that he had seen in a dream that he (Al-'Alā')

¹ Al-Qushayri, p. 15; Ibn Khallikān, Vol. I, 271; but Jāmī (p. 27) omits the word *Ibn* between 'Abdu'l-Raḥmān and Aḥmad.

² Yāfi', Vol. II, p. 29; Ibn Khallikān, Vol. I, p. 276; Jāmī (p. 27) gives the name of the place as Dārān.

³ 'Aṭṭar, Vol. I, p. 236.

⁴ *Ibid.*

⁵ Yāfi', Vol. II, p. 29.

⁶ Al-Manāwī, p. 425.

⁷ Jāmī, p. 27.

⁸ Ibn Khallikān, Vol. I, p. 276.

⁹ Not to be confounded with his contemporary Aḥmad Bazargān, a rich merchant of Nishāpūr. See 'Aṭṭar, Vol. I, p. 241.

¹⁰ Al-Dhahabī, Vol. I, p. 42.

¹¹ 'Aṭṭar, Vol. I, p. 242.

¹² Al-Dhahabī, Vol. I, p. 42.

¹³ Abū Nu'aym, fol. 195.

had entered the paradise. "It was a Satanic dream,"¹ replied al-'Alā'. According to another version of the same story al-'Alā' betook himself to a small chamber where he wept for three days. Then Ḥasan of Baṣra got the door opened, and asked him to rejoice and not to be sad.² He died in 94 A.H./713 A.D.³

Bāyazīd al-Bastāmī, Abū Yazīd Ṭayfūr b. 'Īsā b. Surūshān,⁴ an inhabitant of Bastām, a town in the suburbs of Qūmas, the frontier town of Khurāsān on the 'Irāq side,⁵ is very much respected by Ṣūfīs; and al-Junayd has devoted one full chapter in the *Ma'ālī* to an account of his life,⁶ and in a full chapter in *al-Maqṣad* he gives a full description of his ascension.⁷ Bāyazīd died at the age of 73, in 261 A.H./875 A.D., or in 264 A.H./878 A.D.⁸

Abū Wuhayb Buhlūl b. 'Amr al-Ṣayrafī of Kūfa⁹ attended the lectures of Ayman b. Nābil, 'Amr b. Dīnār and 'Āṣim b. Abī'l Najwad.¹⁰ He died circa 190 A. H./806 A. D.¹⁰

Abū Sulaymān Dā'ūd b. Nuṣayr al-Ṭā'ī¹¹ heard Traditions from 'Abdu'l-Malik b. 'Umayr, 'Urwa b. Hishām and

¹ *Ibid.*, fol. 194; al-Sha'irānī, p. 41; al-Manāwī, Vol. I, p. 246.

² Al-Junayd, *Ma'ālī* (MS) p. 17; Abū Nu'aym, fol. 195.

³ Al-Manāwī, Vol. I, p. 246.

⁴ Sam'ānī, fol. 81a; Ibn Khallikān (Vol. I, p. 240) inserts in the chain of lineage "Ādam b. 'Īsā b. 'Alī" after 'Īsā, but this cannot be correct, as he himself says that Bāyazīd's grandfather was the first of the family to embrace Islam.

⁵ Yāfi'i, Vol. II, p. 173.

⁶ Al-Junayd, *Ma'ālī'l-Himam*, chap. IX.

⁷ Al-Junayd, *al-Maqṣad ilallāh*, chap. IX.

⁸ Al-Qushayrī, p. 14; Ibn Khallikān, Vol. I, p. 240; Yāfi'i, Vol. II, p. 175; Jāmī, p. 38; al-Manāwī, Vol. I, p. 422.

⁹ Ḥasan, p. 67; Ibn Shākir, Vol. I, p. 82.

¹⁰ Ibn Shākir, Vol. I, p. 82.

¹¹ Ibn Qutayba, p. 175; Ibn Khallikān, Vol. I, p. 177; Ibn Hajar, p. 117; Jāmī (p. 28) has 'Naṣr' which appears to be a misprint for 'Nuṣayr.'

al-A'mash; and narrated them before Ibn 'Illīyya, Ishāq al-Salūlī, Abū Nu'aym and Muṣ'ab b. al-Muqaddam.¹ In *fiqh* he was a disciple of Abū Ḥanīfa and was not on good terms with Abū Yūsuf, because of the latter's appointment as the Chief Qādī.² He was one of the greatest ascetics and Ḥabīb Rā'i was his spiritual guide.³ His mother left to him a legacy of 20 *dīnārs*,⁴ or 300 *dirhams*⁵ which he spent in 20 years.⁶ He died in 162 or 165 A.H./779 or 782 A.D.⁷ Ibn Ḥajar gives 160 A.H./777 A.D. also as the year of his death.⁸

Dhu'l-Nūn al-Miṣrī, Abu'l-Fayḍ⁹ Thawbān (surnamed Dhu'l-Nūn) b. Ibrāhīm¹⁰ was born at Ikhnīm,¹¹ a town in upper Egypt, and took his permanent residence at Nūba.¹² He heard traditions from Mālik b. Anas, al-Layth al-Miṣrī, Ibn Luhay'a, Fuḍayl b. 'Ayād, Ibn 'Uyayna and Aslam al-Khawāṣṣ.¹³ He was a disciple of Shaqrān al-'Ābid,¹⁴ though Jāmī would have us believe that he received his light direct from the archangel Saraphel.¹² Al-Ḥasan b. Muṣ'ab al-Nakh'i, Aḥmad b. Ṣabbāḥ al-Fayyūmī and Ṭā'i obtained Traditions from him.¹³ He died in Dhul'l-Qa'da

¹ Al-Manāwī, p. 185.

² Hujwīrī, p. 88; Jāmī, p. 28.

³ Qushayrī, p. 12; Hujwīrī, p. 87; 'Aṭṭār, Vol. I, p. 219; Jāmī, p. 28.

⁴ *Ibid.*; 'Aṭṭār, Vol. I, p. 227.

⁵ Ibn Khallikān, Vol. I, p. 177. ⁶ See notes 4 and 5.

⁷ Yāfi'i, Vol. II, p. 35; Ibn Khallikān, Vol. I, p. 177; al-Manāwī, p. 162; Jāmī, p. 28.

⁸ Ibn Ḥajar, p. 117.

⁹ Jāmī, p. 23.

¹⁰ Qushayrī, p. 8; Ibn Khallikān, Vol. I, p. 101; al-Manāwī Vol. I, p. 384; Jāmī, p. 23.

¹¹ Abu'l-Falāḥ, *Shadharāt*.

¹² Jāmī, p. 23.

¹³ Al-Manāwī, Vol. I, p. 384.

¹⁴ Ibn Khallikān, Vol. I, p. 110.

245 A. H./860 A. D.¹ (according to some in 246 or 248)² and was buried at Qurāfat-al-Ṣuḡhrā.²

Abū Muḥammad³ al-Faṭḥ al-Mawṣilī's father's name was either Sa'īd⁴ or 'Alī.⁵ He was a contemporary of Bishr al-Ḥāfi (who died in 227 A.H.) and Sarī al-Saqāfi (who died some time after 250 A.H.), hence the date of his death cannot be 120 A.H./738 A.D. as given by al-Manāwī.⁶ The scribe has written the word مائة on the margin which appears to be a mistake for مائتين. In fact he died in 220 A.H./835 A.D.

Ḥamid al-'Ārif. All the authorities are silent about him.

Ḥammād al-Qurashī. There have been two persons of this name. One of them, who died in his 80th year in 201 A.H./817 A.D.⁷ was a traditionist. He, therefore, cannot be the person meant in the text. The other Abū 'Amr Ḥammād, who was contemporary with al-Junayd and a resident of Baghdād, was a Ṣūfī.⁸ It seems, therefore, very probable that he is the person meant in the text.

Al-Ḥasan al-Baṣrī, Abū Sa'īd al-Ḥasan, was the son of Abu'l-Ḥasan Yasār,⁹ (a client of Zayd b. Thābit al-Anṣārī)¹⁰ and Khayra (a clientess of Umm Salama, the Prophet's wife)¹⁰, and had enjoyed the company of several Companions, 70 of whom were those who had attended the battle of Badr.¹¹ He was noted for the fluency of his

¹ *Ibid.*; Sam'ānī, fol. 22a; Qushayrī, p. 8; al-Manāwī, *al-Kawākib*, Vol. I, p. 390.

² Ibn Khallikān, Vol. I, p. 101.

³ Sha'rānī, p. 93.

⁴ *Ibid.*, al-Manāwī, Vol. I, p. 270.

⁵ Jāmī, p. 33.

⁶ Al-Manāwī, Vol. I, p. 269.

⁷ Ibn Hajar, p. 101.

⁸ Jāmī, *Nafahāt*, p. 52.

⁹ Al-Dhahabī, Vol. I, p. 245; Ibn Khallikān, Vol. I, p. 128;

Ibn Hajar, p. 87.

¹⁰ Ibn Khallikān, Vol. I, p. 128. ¹¹ 'Aṭṭār, Vol. I, p. 25.

language,¹ and is accused of relating traditions on apocryphal authority.² Zabbān b. al-'Alā,³ Shaybān b. 'Abdu'l-Rahman⁴ and Wāṣil b. 'Aṭā, the founder of the Mu'tazilite sect, were his disciples. He died of diarrhœa on Thursday, the 1st of Rajab 110 A.H./10th October 728 A.D.⁵

Al-Ḥasan al-Yawājirī. All the authorities are silent about him.

Ibn Sīrīn, Abū Bakr Muḥammad b. Abū 'Umara Sīrīn,⁶ commonly known as Ibn Sīrīn, was born in 33 A.H./655 A.D.⁷ Sīrīn was an inhabitant of Jarjarāyā, whence he came to 'Ayn Tamar where he was made a war captive, and ultimately a war slave by the famous general of Islam, Khālīd b. al-Walīd. Sīrīn fell in the lot of Anas b. Mālīk who promised to set him free, if he paid him 20,000 or 40,000 dirhems.⁸ Ibn Sīrīn's mother Ṣafiyya was a clientess of Abū Bakr al-Ṣiddīq.

Ibn Sīrīn was a great traditionist and related Traditions to Qatāda b. Da'āma, Khālīd and Ayyūb⁹ on the authority of the Companions Abū Sa'īd al-Khadrī, Ibn 'Umar, Ibnu'l-'Abbās, Abū Bakra,¹⁰ Abū Hurayra, 'Imrān b. Ḥuṣayn, Anas b. Mālīk¹¹ and 'Abdullāh b. al-Zubayr. He was a cloth-merchant, and on account of the defect in his sense of hearing, was known as *al-Aṣamm*, "the Deaf".¹² He

¹ Al-Dhahabī, Vol. I, p. 245; Ibn Ḥajar, p. 87.

² Yāfi'i, Vol. I, p. 230; Ibn Khallikān, Vol. I, p. 128.

³ Yāqūt, Vol. IV, p. 217.

⁴ *Ibid.* p. 263.

⁵ Ibn Khallikān, Vol. I, p. 128; Ibn Ḥajar, p. 87; al-Manāẓir, Vol. I, p. 179.

⁶ Ibn Qutayba, p. 103; Ibn Khallikān, Vol. I, p. 453; Ibn Ḥajar, p. 323.

⁷ Ibn Khallikān, Vol. I, p. 453; *Sharḥ Majāmi*, p. 308.

⁸ *Ibid.*

⁹ *Ibid.* Yāfi'i, Vol. I, p. 223.

¹⁰ Abū Nu'aym, Vol. I, fol. 368.

¹¹ *Ibid.*; Ibn Khallikān, Vol. I, p. 453.

¹² Ibn Qutayba, p. 103; Ibn Khallikān, Vol. I, p. 453.

had had 30 children from one wife, of whom only 'Abdullāh survived him.¹ A spendthrift, that he was, he always stood in debt, and for his inability to pay off his debts he had even to bear the hardships of imprisonment.¹ He died, at the age of 78, on the 9th of Shawwāl 110 A.H./18th January, 729 A.D., a hundred days after the death of his contemporary al-Ḥasan of Baṣra.² Al-Yāfi'ī and al-Manāwī do not seem to be correct when they assign him an age exceeding eighty.³

Abū Ishāq Ibrāhīm b. Adham b. Maṣṣūr, belonged to the tribe of Banū 'Ajal, a clan of Asad; whence he derived his *nisba*, al-'Ajalī.⁴ It is also said that he belonged to the tribe of Tamīm, whence he derived the *nisba*, al-Tamīmī.⁵ He was a prince of Balkh and was born at Makka where his parents had gone on a pilgrimage. At the time of his birth his mother prayed to God to make him a righteous person.⁶ He narrated traditions to Abū Ishāq al-Qarārī, Baqiyya and Shaqīq of Balkh on the authority of Yazīd al-Raqqāshī, Yaḥyā b. Sa'īd al-Anṣārī and Mālik b. Dīnār.⁷ He enjoyed the company of Fuḍayl b. 'Ayād and Sufyān al-Thawrī; and lived on what he earned by cutting wood and keeping gardens, and used to take food every fourth day.⁸ He learnt *Qirā'at* under Abū 'Ammāra Ḥabīb b. Ḥamza al-Zayyāt al-Kūfī (80-156 or 158 A.H.)⁹ It is a credit to him that al-Bukhārī accepts traditions on his authority in his book, *al-'Adabul-Mufrad*, as also Tirmidhī in his *Sunan*.¹⁰ He died in 161 A.H./778

¹ *Ibid*; Yāfi'ī, Vol. I, p. 223.

² Ibn Qutayba, p. 153; Ibn Khallikān, Vol. I, p. 453; Yāfi'ī, Vol. I, p. 232; al-Manāwī, Vol. I, p. 285; *Sharḥ Majānī*, p. 308.

³ Yāfi'ī, Vol. I, p. 233; al-Manāwī, Vol. I, p. 285.

⁴ Ibn Ḥajar, p. 15; al-Shākir, *Fawāt*, Vol. I, p. 3.

⁵ *Ibid*.

⁶ Shākir, Vol. I, p. 3, *Sharḥ Majānī*, p. 6.

⁷ Al-Manāwī, Vol. I, p. 144.

⁸ *Ibid*.

⁹ Yāqūt, Vol. IV, p. 151.

¹⁰ Ibn Ḥajar, p. 15.

A.D.,¹ or 162 A.H./779 A.D.² The year 166, as given by Jāmi³, is probably a mistake for 162. He was buried in an island⁴ in the Mediterranean Sea.⁴ It is also said that in his last days he migrated to Syria,¹ and died at Jubayl,⁵ a village in the suburbs of Damascus.

Ja'far, Abū 'Abdillāh Ja'far al-Ṣādiq b. Muḥammad al-Bāqir b. Zaynu'l-'Ābidin 'Alī b. al-Ḥusayn b. 'Alī b. 'Abī Tālib was born in 80 A.H./700 A.D.⁶ His mother Umm Farwa was the daughter of Abū Bakr's grandson Qāsim b. Muḥammad and grand-daughter of 'Abdu'l-Rahmān.⁷ He narrated Traditions to the two Sufyāns,⁸ Mālik and Qaṭṭān on the authority of his father al-Bāqir, 'Urwa, 'Aṭā, Nāfi' and al-Zuhri.⁷ Al-Bukhārī accepted Traditions on his authority in his book, *Khalq Af'ālil-'Ibād*, but not in his *Ṣaḥīḥ*;⁹ while other writers on the subject have accepted them on his authority, and included them in their *Ṣaḥīḥs*.¹⁰ The Shī'a consider him to be their sixth Imam, and the major portion of their Traditional Literature is based on his narration. Ḥamza b. Ḥabīb al-Zayyāt al-Kūfi,¹¹ al-Ḍaḥḥāk b. Mukhallad¹² and Jābir b. Ḥayyān (the famous Gaber), who collected Ja'far's works in a book of 1000 folios comprising 500 booklets,¹³ were his disciples.

¹ Jāmi, p. 28; *Sharḥ Majānī*, p. 6.

² Ibn Ḥajar, p. 15; Abu'l-Falāḥ, *Shadharāt*.

³ Jāmi, p. 28.

⁴ Ibn Shākir, Vol. I, p. 3.

⁵ *Sharḥ Majānī*, p. 6.

⁶ *Ibid*, p. 45; Abu'l-Falāḥ, *Shadharāt*.

⁷ Al-Manāwī, Vol. I, p. 170.

⁸ Sufyān al-Thawarī and Sufyān b. 'Uyayna.

⁹ Ibn Ḥajar, p. 68.

¹⁰ *Ibid*; al-Manāwī, p. 170.

¹¹ Yāqūt, Vol. IV, p. 150.

¹² *Ibid*, p. 272.

¹³ Yāfi'i, Vol. I, p. 304; Abu'l-Falāḥ, *Shadharāt*.

He died in his 68th year in 148 A.H. /766 A.D.¹ and was buried in al-Baqī', the famous grave-yard of Madīna.²

Abu'l-Ḥārith al-Layth b. Sa'd b. 'Abdu'l-Raḥmān al-Fahmī al-Miṣrī was born at Qarqashanda, a village in Lower Egypt,³ in 94 A.H. /714 A.D.⁴ He heard traditions from 'Aṭā,⁵ Ibn Mulayka,⁶ Nāfi', and al-Zuhrī.⁴ Shāfi'ī testifies that he was a greater jurist than Mālik b. Anas.³ He held the office of Qāḍī,⁴ and died at the age of 81⁷ in 176 A.H. /792 A.D.⁴ According to Sam'ānī he died in the month of Sha'bān 174 A.H. /791 A.D.³ at Fuṣṭāṭ.³ All the compilers of the Traditions accept them on his authority.⁸

Abū Yaḥyā Mālik b. Dīnār al-Baṣrī, a client of Banū Sama' b. Luwayy al-Qurashī,⁹ heard Traditions from Anas b. Mālik, Ḥusayn, Ibn Sīrīn, Qāsim b. Muḥammad and Sālim b. 'Abdi'llah.¹⁰ He lived on whatever he earned from copying the Qur'ān.¹¹ He died in 131 A.H. /749 A.D.¹² Al-Manāwī gives 181 A.H.¹³ It appears that ثمانين was probably by mistake substituted for ثلاثين by the scribe.

¹ *Ibid.*; *Ibid.*; al-Manāwī, Vol. I, p. 173; Ibn Ḥajar, *Taqrīb*, p. 68; Amīr Khwānd, *Rawḍatu'l-Safā'*, p. 16; *Sharḥ Majānī*, p. 45.

² *Ibid.*

³ Sam'ānī, fol. 434 b.

⁴ Abu'l-Falāḥ, *Shadharāt*.

⁵ *Ibid.*; Yāfi', Vol. I, p. 369.

⁶ Yāfi', Vol. I p. 369.

⁷ *Ibid.*; Ibn Ḥajar, 311; Abu'l-Falāḥ, *Shadharāt*.

⁸ Ibn Ḥajar, p. 311; Abu'l-Falāḥ, *Shadharāt*.

⁹ Ibn Khallikān, Vol. I, p. 440.

¹⁰ Abu Nu'aym, Vol. I, fol. 427.

¹¹ Ibn Khallikān, Vol. I, p. 440; Abu'l-Falāḥ, *Shadharāt*.

¹² *Ibid.*; al-Sha'rānī, p. 43; Ibn Ḥajar (p. 344) gives *circa* 130; Abu'l-Falāḥ, gives 128 A. H.

¹³ Al-Manāwī, Vol. I, p. 277.

Abū Ja'far Muḥammad b. al-Ṣabāḥ al-Baghdādī al-Dūlābī was born in 150 A.H./767 A.D.¹ and studied Traditions under Shurayk and his contemporaries² and died in 227 A.H. /842 A.D.³ He also compiled a book of Traditions under the title of *Sunan Sagḥūr*.² It seems that he is the person mentioned in the text, although there are two persons besides him bearing the same name. One is Muḥammad b. al-Ṣabāḥ al-Jarjarā'i¹ included among the traditionists only, and is, therefore, excluded. The other is Muḥammad b. al-Ṣubḥ, who died 130 A.H. /748 A.D. at Kūfa, but he cannot be the man referred to, because al-Manāwī⁴ says that he related Traditions from the Tābi'īs, while he is not included among the narrators of Traditions in any of the sources. It is possible, however, that 130 is a mistake for 230, in which case he may also be identified with al-Dūlābī.

Abū Bakr (or Abū 'Abdillāh) Muḥammad b. Wāsi' al-Azdī was a reader (*qārī*) of the Qur'ān and his title was *Zaynu'l-Qurrā'*, "Ornament of the Readers."⁵ He saw a large number of the Tābi'īs and obtained Traditions from them. Among them were Muṭarrif b. 'Abdillāh b. Shikhkhīr al-'Āmirī (d. 95 A.H.).⁶ Ibn Sīrīn, Sālim al-Ghaṭfānī, 'Abdu'llah b. al-Ṣāmit and Abū Burda.⁷ He narrated Traditions on the authority of Anas b. Mālīk also.⁸ He spoke very little and mostly remained quiet, and used to put on coarse woollen garments.⁹ Ibn Ḥajar,⁸ Yāfi'i¹⁰ and

¹ Ibn Ḥajar, p. 323.

² Abu'l-Falāḥ, *Shadharūt*.

³ *Ibid.*; Ibn Ḥajar, p. 323; Sam'ānī, fol. 233 b.

⁴ Al-Manāwī, Vol. I, p. 288-90.

⁵ Abu Nu'aym, Vol. I, fol. 404; Yāfi'i, Vol. I, p. 259, al-Manāwī, Vol. I, p. 286.

⁶ Ibn Ḥajar, p. 340.

⁷ Abu Nu'aym, Vol. I, fol. 409.

⁸ Al-Manāwī, Vol. I, p. 288.

⁹ Al-Sha'rānī, p. 42.

¹⁰ Yāfi'i, Vol. I, p. 259.

Abu'l-Falāḥ¹ record his death in the year 123 A.H./741 A.D., while Ibn Qutayba² and al-Manāwī³ put it three years earlier in 120 A.H./739 A.D.

Ummu'l-Khayr Rābi'a, daughter of Ismā'il al-'Adawī al-Qaysi of Baṣra, was a clientess of 'Alī 'Atīq⁴ who had bought her for six dirhems after her parents' demise.⁵ She was born about 55 A.H./675-76 A.D. As long as she remained in the service of 'Alī, she used to work for him in the day and offer prayers in the night. Once he awoke and saw a flash of celestial light falling upon her, so he set her free the next morning.⁶ Muhammad b. Sulaymān, who was a rich man and was reputed to have hoarded up 80,000 dirhems, asked her hand into marriage. But she rejected the offer and wrote to him: "Asceticism in the world keeps the body comfortable and the desire of the world begets sorrow. It is your grave, get prepared for the Resurrection. Do not be an object of your legatees' wish who want to distribute your heirloom. Observe fast in this world, and break it when you die. If God bestows upon me wealth equal to yours or more than that, I will not like to be busy but with Him. Adieu."⁷ There are anecdotes which show that Rābi'a was of an advanced age before al-Ḥasan al-Baṣri died. It seems, therefore, probable that her death occurred in 135 A.H./753 A.D.⁸ and the year 180⁹ or 185⁸ is incorrect. She was buried at al-Ṭūr,⁸ a village in the suburbs of Nişībīn.

¹ Abu'l-Falāḥ, *Shadharāt*.

² Ibn Qutayba, p. 164.

³ Al-Manāwī, Vol. I, p. 288.

⁴ Ibn Khallikān, Vol. I, p. 182; al-Manāwī, Vol. I, p. 195.

⁵ 'Atṭār, Vol. I, p. 60.

⁶ *Ibid.*, p. 61.

⁷ *Ibid.*, p. 66; al-Manāwī, Vol. I, pp. 195-96.

⁸ Ibn Khallikān, Vol. I, p. 182; Yāf'ī, Vol. I, p. 281; Abu'l-Falāḥ, *Shadharāt*.

⁹ Al-Manāwī, Vol. I, p. 199.

Rubāḥ b. 'Amr al-Qaysī flourished during the second century of Islam,¹ and used to pass his time mostly in weeping.² He lived on saltish bread only,³ and used to say, "Too much of meat hardens the heart, and the wise are not to look after their belly alone."²

Abu'l-Ḥasan (or Abu'l-Ḥusayn) Sarī al-Saqatī b. Muḡhallis al-Siqī was a disciple of the saint, Ma'rūf al-Karkhi,⁴ and heard Traditions from Fuḍayl, Haytham, 'Alī b. Ghurāḥ, Abū Bakr b. 'Ayyāsh and Yazīd b. Hārūn; and related them before al-Junayd, Abu'l-'Abbās b. Masrūq and Ibrāhīm al-Maḥramī.⁵ His death occurred sometime between 251 and 257 A.H./865 and 871 A.D. There is much difference of opinion on this point. Al-Sha'rānī gives 251 A.H. alone.⁶ Ibn Khallikān gives 251, 256 or 257 A.H. as the year of his death.⁷ Yāfi'i and Jāmī give 253 A.H./867 A.D.⁸ Considering the comparative merits of these authorities, 253 A.H. seems to be the correct date. Again there is an irreconcilable difference in fixing the week-day of his death. Jāmī writes that it was Tuesday the 30th,⁹ while Ibn Khallikān gives 6th¹⁰ of the month of Ramaḍān. He was buried in the Shunīziyya, the famous grave-yard of Baghdād.¹⁰

Abū 'Abdi'llah Sufyān b. Sa'īd b. Masrūq al-Thawrī belonged to the tribe of Thawr b. 'Abd Manāt, whence he

¹ Al-Manāwī has not given any dates, but has included his account among the second century men. Besides, al-Junayd says that he was contemporary with Rābi'a of Baṣra: *vide Ma'ālī* MS. p. 13.

² Al-Manāwī, Vol. I, p. 190. ³ *Ibid.*, p. 191.

⁴ Hujwīrī, p. 88.

⁵ Al-Manāwī, Vol. I, pp. 393-96.

⁶ Al-Sha'rānī, p. 86.

⁷ Ibn Khallikān, Vol. I, p. 200.

⁸ Yāfi'i, Vol. II, p. 153; Jāmī, p. 36.

⁹ Jāmī, p. 86.

¹⁰ Ibn Khallikān, vol. I, p. 200.

derived his *nisba* al-Thawrī.¹ A story is current that once, when entering a mosque, he first put his left foot on its floor instead of the right;² whereupon a divine voice called him *Thawr* "a bull."³ This can hardly be anything but a fable. He obtained Traditions from his father (d. 126 A.H./744 A.D.),⁴ and from Simāk b. Ḥarb⁵ (d. 123 A.H./741 A.D.),⁶ 'Amr b. Murra al-Kamālī⁵ (d. 118 A.H./736 A.D.),⁷ Abū Ishāq al-Sabī'ī⁸ (d. 129 A.H./747 A.D.),⁹ al-A'mash⁸ (d. 147 A.H./765 A.D.),⁶ and Ibn Jurayj (d. 150 A.H./767 A.D.);¹⁰ and narrated them before al-Awzā'ī⁸ (d. 157 A.H./774 A.D.),¹¹ Muḥammad b. Ishāq and Mālik b. Anas⁹ (d. 179 A.H./796 A.D.).¹² Sufyān had evolved a system of jurisprudence; but it did not survive him long.¹³ He died in 161 A.H./778 A.D. at Baṣra.¹⁴ He had no issue, therefore his sister inherited the 150 *Dinars* he had left at the time of his death.¹⁵

Abū Ayyūb Sulaymān al-Khawāṣṣ obtained traditions from Sa'īd b. 'Abdu'l-'Azīz¹⁶ and died in 162 A.H./779 A.D.¹⁷ Ibn Ḥajar mentions numerous Sulaymāns with the

¹ Ibn Qutayba, p. 170; Ibn Khallikān, Vol. I, p. 210.

² It is considered bad manners to begin an act with the left hand or foot.

³ 'Aṭṭār, Vol. I, p. 88.

⁴ Sam'ānī, fol. 117 a; Ibn Ḥajar, *Taqrīb*, p. 149.

⁵ Yāfi'i, Vol. I, p. 345.

⁶ Ibn Ḥajar, p. 160.

⁷ *Ibid*, p. 288.

⁸ Yāfi'i, Vol. I, p. 345; Ibn Khallikān, Vol. I, p. 210.

⁹ Ibn Ḥajar, p. 286.

¹⁰ *Ibid*, p. 246, marginal note.

¹¹ *Ibid*, p. 235.

¹² *Ib.* p. 344.

¹³ *Sharḥ Majānī*, p. 217.

¹⁴ Ibn Qutayba, p. 170; Yāfi'i, Vol. I, p. 347; Ibn Khallikān, Vol. I, p. 210; Ibn Ḥajar, p. 15; al-Sha'rānī, p. 54; al-Manāwī, Vol. I, p. 209; Abu'l-Falāḥ, *Shadharāt*.

¹⁵ Ibn Qutayba, p. 170.

¹⁶ Al-Manāwī, Vol. I, n. 211. ¹⁷ *Ibid*; p. 212.

kunya, Abū Ayyūb;¹ but none of them can be identified with al-Khawāṣṣ. As regards Sa'id b. 'Abdu'l-'Azīz, Ibn Hajar records his death in 167 A.H./784 A.D.²

Abū Muḥammad Thābit b. Aslam al-Bunānī belonged to the Bunāna tribe, which took its name from a woman Bunāna who was a clientess of Sa'd b. Luwayy b. Ghālib, to whom she had borne children.³ He heard Traditions from the Companions, Ibn 'Umar, Ibnu'l-Zubayr and Anas;⁴ and narrated them to 'Aṭā b. Rubāḥ, Qatāda, Ayyūb, Yūnus b. 'Ubayd, Sulaymān al-Taymī, Ḥumayd, Dā'ūd b. Abū Hind, 'Alī b. Zayd b. Jad'ān and al-A'mash.⁵ The date of his death is variously given as 123⁶ and 127,⁷ while Ibn Hajar says that he died sometime after 120 A.H.⁸

Thawbān al-Hāshimī was a client of the Prophet. After his death Thawbān migrated to Syria and died at Ḥims (Emessa) in 54 A.H./673 A.D. Al-Bukhārī in his *al-Adabul-Mufrad* and al-Muslim in his *Ṣaḥīḥ* have related Traditions on his authority.⁹

Abū Ḥafṣ 'Umar b. Salama al-Ḥaddād was a blacksmith of Nīshāpūr. In the prime of his youth he fell in love with a girl, and retired into a jungle lest his love-story may be known to people. He became a disciple of al-Ḥīrī (?) and had enjoyed the company of al-Abīwardī, and died in 264 A.H./878 A.D. or 267 A.H./881. A.D.¹⁰

¹ Ibn Hajar, pp. 155 ff.

² *Ibid*; p. 147.

³ Sam'ānī, fol. 91; Abu'l-Falāḥ, *Shadharāt*; *Qāmūs*.

⁴ Abū Nu'aym, Vol. I, fol. 396; al-Manāwī, Vol. I, p. 169. Abu'l-Falāḥ, *Shadharāt*.

⁵ *Ibid*.

⁶ Yāfi'i, Vol. I, p. 259; al-Manāwī, Vol. I, p. 168; Abu'l-Falāḥ, *Shadharāt*.

⁷ Al-Dhahabī, Vol. I, p. 168; al-Manāwī, Vol. I, p. 168.

⁸ Ibn Hajar, p. 59.

⁹ *Ibid*, p. 62.

¹⁰ Al-Manāwī, Vol. I, p. 230-33.

Abū Zakariyyā Yaḥyā b. Ma'ādh al-Rāzī was a pulpit preacher, and was, therefore, known as al-Wā'iz, "the Preacher."¹ His brothers Ismā'il and Ibrāhīm were also ascetics.² He was an optimist; while his namesake Yaḥyā Zakariyyā was a pessimist.³ He died in the month of Jumādā I,⁴ 258 A.H./872 A.D.⁵ at Nishāpūr.⁶

Yūsuf b. Asbāṭ heard Traditions from al-Thawrī, Zāida and Mukhallad b. Khalifa; and related them to al-Musayyib b. Wāḍiḥ and 'Abdullah b. Ḥasan al-Anṭākī.⁷ He inherited 70,000 dirhems which he did not spend on his person, but earned his livelihood by weaving palm-leaves, and for forty years he put on ragged clothes.⁸ He died in 192 A.H./808 A.D., when there were left bones only in his body and no flesh.⁹

¹ Ibn Khallikān, Vol. II, p. 224; al-Sha'rānī, p. 94.

² *Ibid.*

³ Hujwīrī, p. 98; 'Aṭṭār, Vol. I, 298.

⁴ Ibn Khallikān, Vol. II, p. 224; Abu'l-Falāḥ, *Shadharāt*.

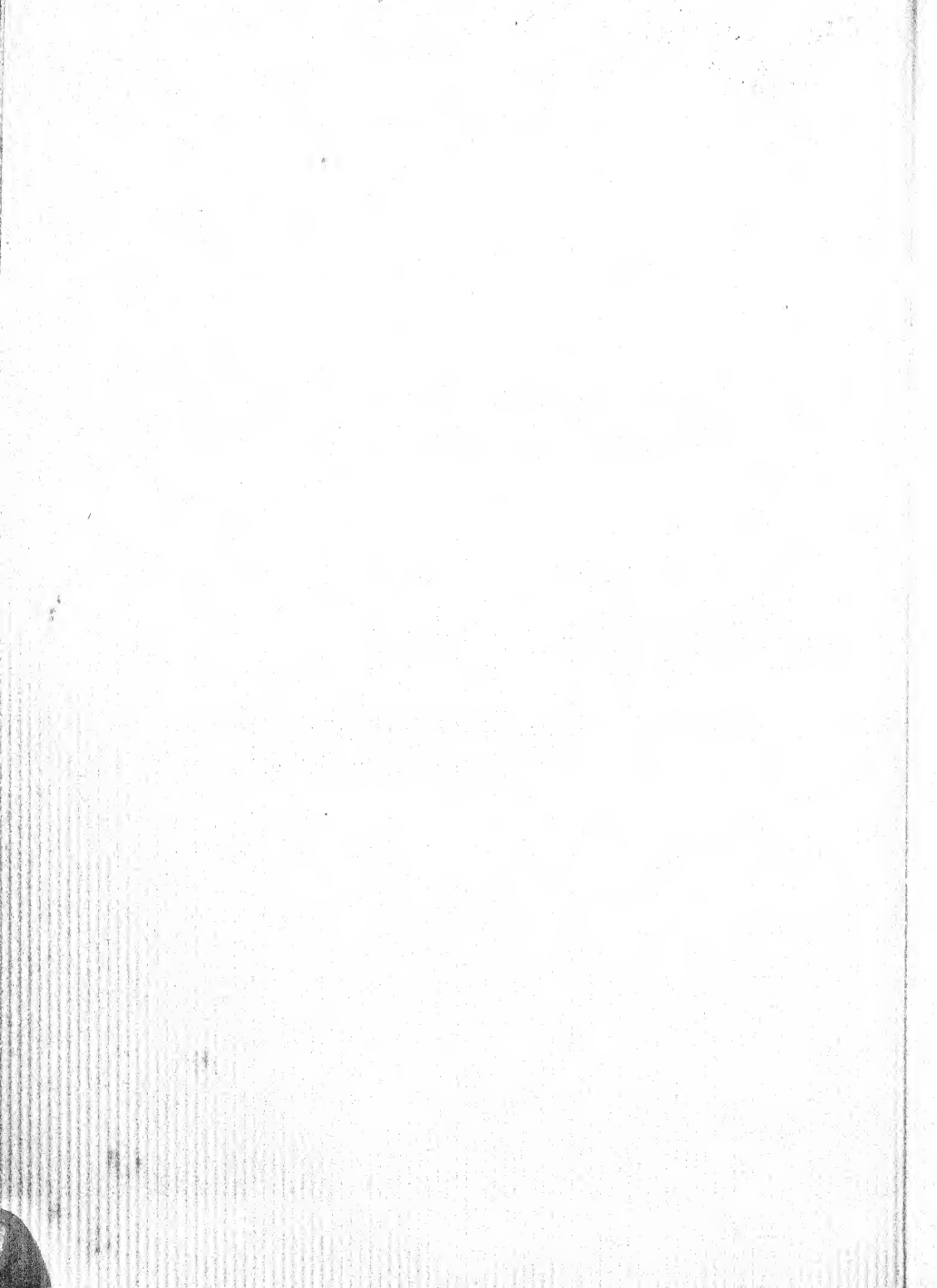
⁵ Al-Manāwī, Vol. I, p. 459; Abu'l-Falāḥ, *Shadharāt*.

⁶ *Ibid.*; *Ibid.*; Hujwīrī, p. 99; Jāmi, p. 38.

⁷ *Ibid.*, p. 323.

⁸ 'Aṭṭār, Vol. II, p. 76.

⁹ Al-Manāwī, Vol. I, p. 323; al-Sha'rānī (p. 71) writes that he died some time after 190.



SECTION V

PHILOSOPHY

SOME ASPECTS OF PHILOSOPHY OF RELIGION

BY

JASWANT SAHAI MATHUR,

*Research Scholar, Philosophy Department,
University of Allahabad.*

TIME

Time is one of the most important problems in the contemporary thought. It is a question which is being

Introduction. tackled by philosophical mathematicians like Dedekind and Cantor and by mathematical physicists like Lorentz. Einstein formulated his own theory which is by far the most discussed theory of modern times.

We know time through events. One experienced event is later than the other just as one seen object is at the right of another. Relations as given in experience connects events of *duration*, and not moments. We are not aware of *empty time* or of events without duration, momentary events, abstraction and intellectual construction. That is to say, we are not aware of time directly as we are aware of other things.

How are logical propositions related to time? There are of course eternal truths which are independent of time

Time and Logic. because they deal with the timeless relations of timeless objects. 2×2 is equal to 4 is a proposition which is independent of time and the truth of which is eternal. There are other kind of propositions also, such as hypothetical asserting temporal relations between classes of events. Such propositions contain essential reference to time, but not

to any particular time. There are yet a third kind of propositions which assert the occurrence of particular events, and which seem to be true at certain times and fall at all other, though this is not really so. We are not directly aware of time as we have already said and hence in dating events we only date other events.

There have been many philosophers who denied altogether the reality of time. Some of them have taken up

an argument against the reality of time which turns on the distinction of past, present and future. They assert that the

Reality of time denied. past and the future do not exist, and the present is a mere point without duration. It is supposed that that which occupies no *finite duration* cannot be real, and this disposes of the present. An argument of this kind is used by Leibnitz against absolute time, though it would presumably apply to events just as well. McTaggart argues that every event is past, present and future; and that the attempt to avoid the incompatibility of the predicates by saying that the event has been future, is present, and will be past, involves a vicious circle, or a vicious infinite regress. Time is infinite and continuous. This characteristic of time also leads some philosophers to deny its reality. Infinity is very often confused with endlessness. Leibnitz based his main argument against the absolute theory of time on the fact that if it were time, there might be a period finite or infinite before any event happened.

It seems to have been the question of rate-measurer that led Newton to the theory of absolute time. According to Newton absolute time flows uniformly.

Measurement of duration. This statement is thoroughly obscure.

Time cannot be said to flow, it would mean that time changes, and this would make time consist of a series of events in time. This leads on to pure

absurdity. We cannot understand what Newton meant by uniformity.

It would be worthwhile at this place to mention in brief the historical speculations about time. To the Greeks we owe much less with regard to time than with regard to matters of philosophic or scientific speculation. This may be ascribed to the late development of dynamics; the Greek approach to the problem was mainly by way of astronomy. Zeno's celebrated arguments have important bearing on change and continuity and Plato's *Timæus* also has the merit of distinguishing time from what is in time.

St. Thomas Aquinas discusses time and change with some fullness. He draws a distinction between the time in which angels perform their acts and that in which men and matter operate. The time of angel is discreet and that of man is continuous.

In modern philosophy the men who have most concerned themselves with time are Leibnitz and Kant. Leibnitz argued strongly for the relative view of time in letters to Clarke who represented Newton and the absolute theory. His arguments turn mainly on the identity of indiscernibles and the principle of sufficient reason. Leibnitz carefully distinguished duration from the relation of before and after, and he compared duration to the extension of matter. Leibnitz' view is that time is a system of possible positions of possible events related by before, after and simultaneous with. He holds that all possible worlds must be in time, though, of course, the temporal relations of the actual world are contingent.

The absolute theory of time has never had much philosophic support. Perhaps the best arguments for absolute time and space are to be found in Bertrand Russel's *Principles of Mathematics*. They do not seem to be conclusive, and their author has latterly taken much more realistic view.

Locke Berkeley and Hume insisted that the notion of time comes from the succession of our idea. But they never made it clear how their temporal relations are connected with the time that is used in Physics.

Time plays more important part in Kant than perhaps in any other. In the Aesthetic he tries to prove that it is a form of intuition, the form appropriate to the internal sense. In Dialectic Kant has antinomy about time. In Analytic time plays the part of mediating categories. Kant's critical solution of his own antinomy is that the infinity involved in time is not actual infinite.

It is also necessary to mention among others the recent philosopher Bergson in whose work time nominally, at any rate, plays an important part. Bergson holds that the attempt to treat time as similar to space is a perverse one philosophically, it may work well in dealing with dead matter, but it shows its falsity in Biology, in Psychology and Philosophy. He also finds fault with the mathematical method of the continuum as applied to time; he admits that it is internally inconsistent but denies that it describes what anybody really means by change and motion. Bergson's most characteristic doctrine belongs to the subject of change rather than to that of time. The problem of time continues to trouble the post-Kantian philosophers, and there are idealists of the school of Bradley and Bosanquet who believe that time is in the Universe, whereas on the other hand the Italian school of philosophers like Croce and Gentile believe that Universe is in time.

THE PSYCHOLOGICAL ACCOUNT OF RELIGION

Such writers as Stout and Ward, maintaining what may be called the classical traditions, are in principle neutral upon what may be called the fundamental question

of the validity of religion and the realities upon which it rests. In their emphasis upon ego and its direct apprehension of values they may indeed be called apologists for religion, since it is exactly here that they challenge the presupposition upon which the destructive theories of psycho-analysts and their allies rest.

Unquestionably James writes as an apologist for religion. His "Will to believe" is far more bracing than a multitude of devotional treatises. "I wish to make you feel," he says, "that we have a right to supplement it by an unseen spiritual order which we assume on trust, if only thereby life may seem to us better worth living again."

Dr. E. B. Holt has successfully gone back to Tyndall or to Aristophanes and explains that all man's consciousness, volition, desire, and the rest are really movements of particles, or of currents of energy in the world about him.

Watson says that upon the advent of Behaviourism it (religion) is 'being replaced among the educated by experimental ethics.'

The psycho-analysts have developed the attack on more serious lines, claiming to show in the *mental process of projection* a natural origin for religious symbols and beliefs, and at the same time their transitory and unreal character.

For Freud, with mechanistic hypothesis, all this is illusion, and the future which he foresees for religion is that man should be set free from this '*fantasy-structure*' which is only the product of his weakness and fears. "Religion is comparable to a childhood neurosis."

Jung denies religion of to-day. He goes further in seeking the origin of the divine figures. He traces them back not to the infantile situation in the family, but what he calls the '*historical collective psyche*' or the racial *unconscious*. It is rather a difficult conception to understand.

Another form of the psychological attack is to be found in the rather numerous body of writers who, from various points of view, regard religion as purely a social phenomenon. Ames, for example, defines religion as "the consciousness of the highest social values," and declares that we must dispense with the 'rigid distinction between the natural and the supernatural, between the human and divine.' Line between morality and religion is obscure and tends to vanish completely. Similarly Patten identifies religion not with morality but with the social reaction against degeneration and vice.

FAITH AND WORSHIP

The defence of religion by logical arguments has proved singularly unconvincing. To demonstrate the existence of God is to reduce Him to the status of an inference.

By common consent the basic principle of religion is faith. It is at once the beginning of the Christian life, and its final and most difficult achievement. It is the simple and direct act of human soul, whereby the child may come to Jesus.

Close connection between faith and love persists throughout their development in the Christian life, and at every point underlies their creedal aspect.

Faith is linked with both love and knowledge, but love is the key to its development. For the theologian faith is always in the last resort faith in God. The specific character of faith clearly enough lies in the field of personal relationships.

PRAYER

The natural expression of this development of faith is to be seen in prayer and worship. "Prayer," says

Aquinas, "is the ascent of mind to God." The test whether of worship or of prayer is sincerity, and the test of sincerity is that the worshipper should forget all else save that he is speaking with his God.

Psychologists' view that prayer is merely auto-suggestion is irony. Suggestibility and faith are intermingled, but without faith suggestion is impossible. In higher stages of prayer, as in the mystical life we have true auto-suggestion, the constant repetition of some single, self-chosen idea producing a state of concentration.

Distinction between suggestion and faith can be maintained. Suggestion itself is no mechanical activity but is itself a principle in which person and person meet in purposive activity.

SPIRITUAL HEALING AND PSYCHOLOGICAL PROCESS

Faith is an element in spiritual healing. All things, said Jesus, are possible to him that believeth. Christ's healing was not due to mere superficial suggestion.

Modern psychological healing makes these healings normal cases of suggestion. Difficulties arise as to the functional and organic disorder.

Both the simple treatment by suggestion and the more complex methods of rational analysis are found in the end to depend upon prestige in the method or in the healer, and faith in the patient.

Psychotherapy demands an end or a goal, and in effect a religion. It thus points the way to an understanding of the efficacy of a true religion.

SIN AND SPIRITUAL DIRECTION

Many descriptions of sin given. Sin separates the sinner from God. It is a disorder and self-love according to Augustine. According to Dr. Williams it is arisen due

to selfishness, lovelessness, and hate. Dr. Kirk declares that 'Sin may be said to begin with self-regard.'

When we turn to the psychologists we find that they have but little to say about sin. So far as it is mentioned at all it is normally regarded as another name for mental disorder. Special characteristic of sin are ignored here. Sin is committed by sane man who has full capacity for moral choice. Pathological element diminishes sinfulness. The plea of insanity is a complete defence against any charge. For the psychology of Freud it has in fact no meaning. It is only in systems of psychology which take account of both freedom and purpose that sin has any place, for only here has moral standard any meaning.

The problem of life is the problem of love in all its phases. Psychology deals with its mechanism at its lower and intermediate levels. Beyond those levels we pass into the region of religion, and it is for this reason that psychology as a science may have a pseudo-completeness of its own, such completeness as is in fact possible to any science within the sphere of its self-imposed limitations of matter and method, psychology as an art or practice of life can never be complete unless it takes religion into account. In particular the religious conception of sin is the necessary complement of the psychological analysis of its effects upon character, and in the treatment of moral or mental disorder there is likely to remain a disastrous margin of error until the religious point of view is given full value. Sin, if it be sin at all, can never be simply written off as a moral disease, and it may well be true that there is no case of moral disease which has not in its origin and history some faith of personal adjustment, some disorder of love. And for this there is no better name than Sin.

Anything which hinders the development of the love of God is a wrong object and leads to sinful disposition.

We may assume that every individual is in some degree a sinner, with a character not wholly unified by love of the highest. This can only mean that there are sentiments wrongly formed in his life, attached to wrong objects, and destroying the unity of his personality. The character can develop perfect sainthood, and it may rest upon the complete and unbroken choice of some object known to be wrong, and the unhesitating rejection of the higher moral choice. These are extreme uses. With the normal sinner we find a partial choice of wrong object, a conflict of sentiments, a divided disposition and distress.

A very large proportion of those mentally disordered seek the aid of religion rather than that of the doctor, and it is frequently the priest who is first in touch with the cases in their early stages, when wise treatment offers a good hope of success.

Knowledge of psychology is a most valuable possession for the would-be spiritual director. It is the standing tradition of the church that the priest is asked for advice, penance and absolution. In giving advice a little psychological knowledge is better than none. It will save the priest from accepting accounts of sin at their face-value. He will be better able to perceive the working of the powerful instincts, appetites, and emotions and to suggest methods of redirecting their energy into channels of service and so to check their essential self-reference.

OBJECTIVITY IN RELIGION

If psychology is obscure when it comes to its definition of the reality upon which its processes depend, religion has not been much less obscure when it has endeavoured to set before men an intelligible and even tolerable conception of the God of their worship. For that man must worship is beyond all question. He can dispense

with formal creeds, and he may not recognise the object of his worship by the name of God, but the fact and attitude of worship is one of the most fundamental things in his, and has been in history as well as in theory a prime condition of his growth to such manhood as is his.

Faith is the basic fact of religious life and worship is its mere expression. It is akin in its rudimentary form to that suggestibility of which psychology speaks. Psychology is incomplete because it does not give something in the inner character of reality itself which underlies the creative appearance of life and explains this predominance of faith and love.

Two questions are got to be answered :—(1) Is there any direct empirical evidence for the existence of this objective, and creative reality which has been postulated? (2) And does it agree, sufficiently for faith, if not wholly for understanding, with the claims of Christian theism?

For the answer of the first we must turn to the mystics and to the psychologists. The mystics unite in declaring that their experience lies beyond all description, and then pass on to describe with singular fluency and freedom. Their intense reality of experience cannot be questioned. The mystic cannot explain, but he knows that he has known and not merely felt, and after that knowledge remains an abiding possession which no criticism can ever reach.

The sense of illumination is the special characteristic of those mystical states which are significant for our purpose, and the determination of its real character is of great importance for the study of religion.

That the mystics have been able to convey to the world every new truth seems to be negated by another fact. The actual content of their revelations is never anything particularly new and original. In fact the only completely general pronouncement of the mystics is their claim that

they have been in touch with the Divine. It is in the mystic claim of immediate certainty and knowledge of the presence of God that there is an agreement between Protestant and Catholic, Christian and Hindu.

Psychologists' criticisms differ with their philosophy rather than with their psychology. For L'uba the whole business of mysticism is record of man's deluded interpretation of states for which no rational explanation was as yet available. For others the mystical experience has real validity though not in the terms which the mystics themselves employ.

The most valuable comment on Otto is one made unwillingly and in a different connection by L'uba and McDougal. L'uba says, 'in the presence of grand, or particularly beautiful natural scenery many persons feel the presence of God. McDougal remarks, 'this is so, no doubt, because the main emotions worked are those of admiration and reverence—emotions that involve negative self-feeling. Now, negative self-feeling is an attitude referring to persons. Thus one is led to the thought of a personal power as the cause of the impression.'

Whatever else is true of religious experience it is at least clear that it unites, and gives full value to these two factors, personal and creative. The claim of religion is not only that its object is real, but that it is Creator-God, capable of being loved.

The Philosophy of the Good Life

BY

CHARLES GORE, D.D.

Zorathustra.—Religious and Ethical ideas—consider first the traditional back-ground; secondly the teaching of Zorathustra, thirdly consequences in the Persian religion of later days.

The religion of Zorathustra was deeply ethical but it was based upon his dominant conception of God; and we should turn our attention first to this. He was neither a mystic nor a metaphysician, and his theological ideas lack precision; but for all practical purposes he was monotheist by profound conviction. The one God of his devotion was the Aryan deity, Ahuramazdah—the Lord Wisdom—associated in tradition with Mithra whom Zorathustra rejected as morally inadequate, isolating Mazdah in sole supremacy as God of gods.

We do not find in the Gathas much ethical details. The virtuous life is the life of the good, peace-loving peasant or noble—peace-loving save that there is to be truceless hatred and war to the death against the servants of the lie. And the agricultural life centres in the home. There is no occupation for the good man contemplated except the agricultural. The love of the time is essential.

SUMMARY OF ZORATHUSTRA'S RELIGION AS GIVEN BY DR. CAR

“ By his right choice the man who obeys Ashavan helps in the final victory of the good spirit, the spirit of the Lord Wisdom (Ahura Mazda), over the spirit of Deceit and Treachery (Druj). Inspired by the Right mind, he takes his stand against the whole world of the

Druj, its satellites (the Devas), its priest, its sorcerers, its fairies and its cult, sacrifices of living creatures and of the intoxicating drinks. Nomadic life is repudiated. In this way he will realise in this world and hereafter the wished-for kingdom, the kingdom of Blessings, the kingdom of the Best, the Good Reward, with perfect Happiness and immortality, that will follow the last ordeal and the Restoration of the world."

The tone of Zoroaster religion is deeply ethical but it was swallowed up in darkness and was lost in the welter of superstition and magic. The Avasta has really deteriorated into charms and magic.

INDIA AND BUDDHISM

Everywhere no doubt, mankind has experienced more or less deeply the sense both of the vanity and misery of life; but in India this sense appears to have become so strong as to overwhelm the sense of joy and hope in life, which found expression in the Vedas, and to have occupied the soul, and thought of India with a permanent and profound pessimism of outlook over the world of present experience, as being both unreal and evil, and such a life drove them to redemption from life itself.

OBSTACLE TO THE DEVELOPMENT OF THE CONCEPTION OF THE GOOD LIFE

(1) *Transmigration or the Doctrine of Karma*—The doctrine of Karma undermines or weakens disastrously the sense of personal responsibility in the present individual, for it makes him think of his life and the bearing of the penance laid upon him by irresistible fate for things done in some other existence of which at least he has no memory and for which he can at present feel no

responsibility. Therefore it destroys or at least diminishes moral freedom and obligation.

(2) *Intellectualism*—a passion for abstract absolute. This search takes away the best minds.

(3) *Priesthood* which has been on the whole divorced from morality and indifferent to morality.

In Buddha we have an attempt in the good life. Thus the prophet Zorathustra's teaching was something much nobler and much more distinctive than historical Zoroastrianism or Parsism. And, as we shall find, the system of Buddha was something far more distinctive and nobler of its kind than the Buddhist religion as it has appeared in the life of the action reckoned on Buddhist.

This, whether we are considering the life of the Order or the life of the layman we are never allowed to forget, however carefully defined are the duties of life, and however thoroughly analysed are vicious tendencies of mankind that the sole motive for self-improvement is the selfish motive of obtaining a better future for oneself; that the only really satisfying motive is the motive of getting utterly rid of individual life by the utter extinction of desire.

We have to accept the fact that almost all the world over the natural religions are ceremonial and non-ethical. They are divorced from morality, and often positively immoral. So it was and is in India.

Israel.

Thus Aneos conception of Jehovah as the God of universal nature and the just ruler of all people is a great advance upon the idea of Jehovah as the God of the land of Israel. But the advance is not continuous.

The conception of God is that of one who has no limit to its absoluteness and is in that a rival. His judgment is righteous.

It is a most remarkable fact that whereas in so many religions the belief in future life was part of their substance from the first, the opposite was the case with Israel.

Old Testament.

No passage in the Old Testament is more splendid than the denunciation of pride whether of intellect or will. Divine judgment upon wickedness is keynote of sacred books of Israel.

Imperfection of Old Testament:—

- (1) Religion for a particular nation.
- (2) Savage expression for enemies of Israel.

Jesus Christ.

Not a legislator, an ethical prophet, the preacher of good life for man. He also formed rudimentary society and appointed Twelve Apostles.

The good life as taught by Jesus, was wholly based upon a specific idea of God and His purpose. "No one," he said, "Knoweth the Father save the son, and he to whomsoever the son willeth to reveal Him." Father was a new title for God, but the emphasis laid on it by Jesus was new.

Jesus insisted much on prayer, and inculcated unlimited belief in its efficacy. (Love—a deliberate disposition which can be made a matter of choice and effectively cultivated if we will).

A complete philosophy of good life as given by Christ is co-operation with the gracious purpose of God.

Jesus' teaching is unmystical. The demand that He makes on them both Godward and manward is extreme. It is the extreme of self-devotion, self-control, meekness, and unselfishness. He literally requires control of flesh by the spirit.

Reflection upon the Historical Survey.

In Zorathustra's teaching we discern the fundamental assumption of a conscience in man which can distinguish good from evil. Goodness is co-operation with God.

In Israel we find the same message; only the vindication of God is expected in this world and in another "world to come"—message not of a single individual.

From Mohammad we heard what is fundamentally only an echo of the message of Israel prophets and of a debased Christianity; it is, however, on a much lower level than Christianity properly understood.

Amidst a mass of non-moral superstitions, the idea of an ultimate divine sanction for morality appears in the teaching of the three Masters who are the boast of China—Laotse, Confucius and Mencius.

The great Greek moralists could appeal to the conscience of men and not look up to religions.

Rousseau revolted against Christianity and the authority of whole ideal tradition—idea of 'general will.' On Rousseau's emotional philosophy no good life can be built.

The Christian Idea of God.

God—personal, eternal, self-complete, the absolute creator of all that is, immanent in the whole creative process, but also transcendent-perfect-goodness as in wisdom and power, and awful in holiness, the judge and rewarded of all free spirits, guiding all things to victory of good. God is revealing Himself in sufficient measure to the conscience and intelligence of man, until this revelation reached climax in Jesus Christ—"an image of God."

Religion is not generally ethical when it appears in history. There is no absolute value. Truth, Beauty and Goodwill are surely not otherwise really conceivable than as qualities of a personal being.

God has creative will and purpose and not like Aristotle's supreme being as pure intellect contemplating itself.

Turner says, the material universe is a mechanism and necessarily implies a mind which dominates—this is supreme self.

The Moral Freedom of Man.

Mankind are governed by two worlds—flesh the lower world, and higher will of God. In the first case he changes his freedom to slavery which ends in destruction. God's service is the only real freedom. This doctrine is found in the moralists of many nations.

Moral sin lies not in physical body but in will. God made mankind free and not mechanical and unintelligent. This he did at the risk of their not doing the purpose of God. The responsibility lies not with God but with man.

Rational.

1. Christian view is the most rational view which man can entertain.

Christianity is morally effective. Besides giving moral cares the revelation of the moral ideal in perfect human life, in a person worthy of the absolute faith which He claimed, and capable, as He proved, of supplying by His spirit inward power corresponding to the outward gives to Christianity an enormous practical advantage.

2. Without faith no scientific knowledge is possible.

When Jesus so urgently insisted upon the need of faith, He did not mean resignation, but a persistent importunity which could change things, which could remove mountains, which could win what would seem impossible victories.

3. Knowledge is relative and abstract.

The Intuitive Basis of Knowledge

BY

N. O. LOSSKY.

Outline.

In the concluding chapter, after having urged that there is in truth no antithesis between the universal and the individual, that the true universal is in fact, according to the phraseology which has come into vogue amongst us, the concrete universal, he proceeds to give sanction to the doctrine that a complete unity of the world is intelligible only if the world be thought of as grounded in an Absolute Reason wherein all its aspects are co-ordinated and teleologically related to one another.

The first part of the book is mainly critical and is designed to bring into view the full significance of the inquiry.

The principal task of Professor Lossky in the second part of his work may be delineated as that of inspecting knowledge as it presents itself in the experience of a thinking being, and analysing it.

Knowledge has an intuitive basis because a real object in order to be known must itself be present in consciousness and be immediately or intuitively experienced, after the manner in which philosophers have usually supposed only inner states and presentations can be immediately or intuitively experienced. But the error must be avoided of taking the phrase 'in consciousness' to be equivalent to the phrase 'in the mind' in the sense of being part of the mind's structure. Although intuitive awareness is a necessary condition of knowledge, it does not follow that it is in itself sufficient to constitute knowledge. Simply to 'have' something in consciousness, simply to be aware of, or to intuit something is not to know that 'something.'

Knowledge emerges when in addition there is brought to bear upon the immediately given content an active process on part of the subject,—a process of discriminating the elements of features of the 'given' of comparing them with one another, and of thus discerning their relations and inner connections.

Introduction.

We must admit that the attempt to work out a philosophical conception of the world is a hopeless one, or have recourse to a very different method, and construct our philosophical theories, and above all a theory of knowledge, without falling back on presuppositions, *i.e.*, without using as premises certain propositions of the special sciences. A thinker who wishes to perform the analysis of experience actually taking place without reverting to some ready made theory has no right in any way even to define knowledge, *e.g.*, to approach his enquiry with the idea that 'knowledge is a reproduction in thought of reality, etc.,' should not start with the notions of self and not-self, etc. Even Kant in working out his theory of knowledge did not avoid making dogmatic assumptions, for he was building upon the foundation laid by the empiricism and rationalism of the preceding ages.

A FIRST SKETCH OF THE FUNDAMENTAL PRINCIPLES OF THE INTUITIONAL THEORY OF KNOWLEDGE

Relation of the Object Known to Knowledge.

A theory of knowledge must be free from assumptions. Relation between self and not-self by which knowledge is brought about, or the influence of the external world upon the sensibility of the knowing subject, should not be dealt with as it would in that case be dealing with theories and not with facts.

The first position of the intuitional theory is that the object known is present in knowledge. When I say 'it is light,' 'it is noisy,' 'I am in pain,' these assertions refer to the noise, the light, the pain which unquestionably form part of my knowledge and are not external to it. Speaking generally, the difference between the critical and the intuitional theories is less apparent in their first principles than in the deductions drawn from them.

The object known if immanent cannot be the whole of knowing process and it is possible only to suppose it to be merely a part of it. The thought that a process of comparing enters into every act of knowledge meets with wide acceptance.

If knowledge be then an experience compared with other experiences, and if the object apprehended be the experience that is being compared it is clear that the object is known as it is in itself. What is present knowledge is not a copy, symbol or appearance of the thing that is to be known, but the thing as it really exists.

Our knowledge of the outer world in no way differs from our knowledge of the inner world, in so far as immediacy is concerned. The world of not-self is known no less immediately than the world of the self. Such difference as there is consists simply in this,—that in the case of knowledge of the inner world both the object apprehended and the process of comparing are within the self, while in the case of the knowledge of the external world the object is external to the self but the process of comparing is within the self. In knowledge of the external world the object is transcendent in relation to knowing subject, but immanent in the process of knowing. The content of sensation according to intuitional interior certainly does not belong to the sphere of the self. All sensations have clearly the character of being 'given' to me.

THE GENERAL CHARACTERISTICS OF THE INTUITIONAL
THEORY

Philosophical mysticism, which has hitherto possessed a religious tinge, has always insisted that there is no impassable gulf between God and the human soul; that there are at any rate moments of perfect union between the human and the divine—moments of ecstasy when man feels and experiences God no less immediately than his own self. The intuitional theory of knowledge is characterised by a kindred thought—the thought, viz., the world of the not-self (the whole of that world including God, if God exists) is known no less immediately than the world of the self.

From the point of view of intuitional theory knowledge is never transcendent. This does not mean that it is therefore limited to the sphere of the individual subjects' life.

The intuitional theory is an empirical theory.

INTUITIVE CRITICISM

The 'immanent philosophy' is closely akin to intuitionism, because, to a greater extent than any previous philosophical theory, it is based upon the conception of the equal immediacy of the knowledge of the subjective and the trans-subjective world. The difference lies chiefly in the fact that the theory of knowledge advanced by the adherents of the 'immanent philosophy' prejudices certain ontological questions. Thus in their discussion of transcendence the thinkers in question are not concerned with what is transcendent in regard to knowledge, but with what is transcendent in regard to self. The immanent philosophy once drawn into the realm of metaphysics owe the question of transcendence inevitably settles at the same time other ontological question as well. It concludes

that things exist only as contents of consciousness, and is thus led to an idealism of the intellectualistic type.

THE INTUITIONAL THEORY OF KNOWLEDGE

Knowledge as Judgment.

The differentiation of the objects of knowledge and the objective aspect of knowledge. Knowledge is an experience compared with other experiences. What is a judgment? A judgment is the result of a single act of differentiating an object by means of comparison. This definition is almost a repetition of the definition of knowledge and so it must be. Knowledge can only be realised in acts of judging and taken as a whole, knowledge can be none else than a complex judgment.

A true judgment has a necessitating or binding character. The characteristic of a true judgment is that in it the predicate follows from the subject without any help from the side of the knowing individual, whose function it is simply to discriminate the relation by concentrating his attention upon it, by comparison, etc.

THE ELEMENTARY METHODS OF KNOWLEDGE

Immediate Apprehension of the Relation of Ground and Consequent.

According to intuitionism the world with all its contents, all its elements and relations is immediately given to the knowing subject.

Judgment that results from a simple apprehension of the connections between ground and consequent are judgments of perception. Perception may be direct or indirect.

Induction has intuitive character. Foncegrive himself writes out in his article a theory of induction which he calls 'intuition.' He maintains that intuition alone enables us to distinguish the essential features of a given

event from its accidental concomitants. Having intuitively determined the type, we subsume under it the concrete cases we come across and again intuitively perceive the possibility of an endless number of such subsumption. Consequently induction consists of two acts of intuitive perception and one act of deductive inference. In mathematics and allied sciences, such as Geometry and Mechanics severalisations are constantly being made from a single instance.

The conviction that analytic necessity is the supreme test of truth is still firmly rooted in the traditional, and it is precisely this conviction that Lossky is concerned to call in question. Expressed in other words it amounts to this: the logical ground for recognizing a judgment as necessary lies solely in the compulsion exercised by the logical laws of identity, contradiction and excluded middle. Reason itself turns out to be merely a function of discerning identity or difference.

As a criterion of truth logical laws of thought are only applicable in the case of those judgments in which the predicate follows from subject with analytic necessity.

The ultimate truth to which the new truth must conform are in the last resort the axioms. There is contradiction only so long as we take both assertions to be true, but the contradiction disappears when we either deny the axiom or the proposition.

What is it, then, that compels us in the case of a conflict to side with the axioms?

Next—what is the criterion of the truth of Analytic Judgments? If truth be neither a copy of the real world, nor a symbolic reproduction of it, nor an appearance of the real world determined by the laws of cognitive activity, if it be the reality itself in so far as it is discriminated, there can be no other criterion of truth than the presence in the act of knowing of the reality to be known.

Since we are not in a position to grasp the whole of reality at once but invariably discern only some one or other of the aspects necessarily belonging to it, our knowledge inevitably takes the form of the judgment. The structure of knowledge presupposes that reality is one inter-connected whole.

What is the self-evidence which Descartes took to be the supreme test of truth other than the criterion which is here being intended for. In the same way, Spencer's criterion of 'the inconceivability of the opposite' must be taken to mean the actual presence of reality in experience.

Under the influence of emotions, habits, thoughtlessness, etc., we repeatedly accept proposition as true which are in obvious conflict with the criterion of truth.

According to this view axioms are not *apriori* laws or innate truth implanted in our souls by God. They differ from other judgments of direct induction or indirect perception merely by the fact that their content in spite of its extreme generality stands out before our mental eye with perfect definiteness, freed from all foreign admixture

THE CHARACTERISTIC FEATURES OF INTUITIONAL THEORY

The intuitional theory rejects the false assumption that lies at the basis of the empirical, the rationalistic, and the critical theories of knowledge,—the assumption, viz., the knowing subject is isolated from knowing object.

Among the more important points of discussion dismissed by this theory are the antithesis between knowledge and existence, the rational and non-rational, the *apriori* and the *aposteriori*, the universal and the particular, the analytic and the synthetic.

According to the intuitional theory knowledge is neither a copy, nor a symbol nor a phenomenal appearance of the real world in the knowing subject, but is reality

itself. The antithesis between knowledge and existence is then removed, without, in any way, detracting from the rights of existence. Knowledge contains and not creates real existence.

The whole question of the relation of the phenomenal to the real is, according to the intuitional view, a metaphysical and not an epistemological question.

The entire content of knowledge is composed of elements of the real world. The cognition activity merely subjects this content to a process of discrimination and comparison. There is therefore no ground for exaggerating the significance in knowledge of sensations, as is done by empiricism, nor for exaggerating the significance of the subjective reason as is done by rationalism.

Knowledge as already shown cannot be based upon analytic necessity alone. The latter can only serve as a test of truth when we already possess truths established in some other way.

There is something dead and lifeless about analytic necessity. Synthetic necessity possesses altogether different character. This necessity represents nothing short of a revelation of force, and has a free and creative character. It is free in so far as it is conditioned by the peculiar nature of the known reality itself; it is creative in so far as from one real entity there necessarily follows another, distinct in content from the others.

Real synthetic necessity is the ultimate criterion of truth. All knowledge consist in discerning that A is necessarily followed by B, which is new as compared with A, and is not contained in it. The laws of identity contradiction, and excluded middle cannot help us to grasp the meaning of such a revelation, because they declare neither for nor against it.

Thinking is a comparing activity and cannot create anything.

Is intuitional theory empirical or rational? In so far as we assign to the cognitive activity this limited function of discriminating and comparing, and regard the whole material of knowledge as given in immediate experience our theory is an empirical theory.

In contradistinction to individualistic empiricism and in agreement with rationalism the intuitional theory lays particular stress upon the organic living unity of the world.

SUPERNATURAL BEINGS—GOOD AND BAD

Religion began with a pure monotheism. Later forms in various ways deviations from this.

The earliest form of religion cannot be scientifically known: the simplest religion had probably for immediate objective the world of Nature, at which might be termed the perceptual level. Heaven, Earth, Sun, Moon, etc., worshipped.

Religion from the earliest times has been largely social. In its chief religious acts the tribe acted as one.

The possession of *Mana* and the power to bring peace, to instill fear by the punishment of individuals, led to the ascription of the godly character of kings. There was thus idealisation of men and the humanisation of gods.

The making of legends and myths and the making of images led to the development of Anthropomorphism. The Egyptians Horns was represented with the head of a hawk, as the Indian *Ganesh* with the head of an elephant. Theriomorphism was only transitional.

Philosophical reflection has modified the conceptions of a comparatively small portion of humanity. For the many religion has always been something practical and concerned with concrete relationship of the soul, and these in the highest practical form as essentially personal. Reflec-

tion has, however, within its limits, played a distinctive part, especially amongst the Aryans, before all the Greeks and the Indians.

Rigveda—"Who verily knows and who can here declare it,
Whence it was born and whence comes this
creation?"

etc.,

etc.

The Vedic *rishis* were probably the earliest to turn in search of the divine from the world without to the world within. Already in the Rigveda there are indications of the recognition of the unity underlying all the gods, and one passage gives clear expression to Henotheism: "There is one Being," "Sages call it by many names." The same idea is found in the expression: "I am Vishnu, I am Brahma; I am Shiva."

The Upanishadic doctrine of Brahma that Brahma is all pervading, etc.

Shaivism and Vaishnavism are approach to theism. The latter is more definitely so. *Narayan* and *Vasudeva*, these are two names round which theistic worship grew up. For in them the divine is represented as concerned with the welfare of the world and men. "To guard the righteous, to destroy evil-doers, to establish the law, I come into birth age after age."

For Jainism, God, in so far as the term may be used, is perfect, unfettered spirituality, pure *Jiva*.

For the Zoroastrian Ahura Mazda is "the wise Lord," the spirit of wisdom, the first and the last, the immutable, the eternal.

Of the attributes of God most frequently mentioned in the Quran, three are very prominent: His mercy, power, wisdom and knowledge. "Despair of God's mercy, for all sins doth God forgive." Islam is the religion of peace which comes by submission to God.

The Sikh conception of God undoubtedly through *Kabir* and otherwise owes much to the Muslim influence. There is an opposition to Polytheism and to the representation of the divine in physical form. But the religion has roots in Hinduism and Upanishadic forms of expression are used again and again in its literature. Nevertheless, God is here not an object of meditative contemplation but of strong personal faith. "There is but one God, whose name is true, the Creator, devoid of fear and enmity, immortal, unborn, self-existent, great and bountiful." "Within each body supreme Lord is concealed and within each the whole light is hid." Sex differentiation in God. Earth was the original mother goddess and the sky was the heavenly father.

Mother of Jesus in Christianity attained a place of reverence in religious life. In Buddhism *Kwarryin* is goddess (Japan and China) with the attributes essentially of compassion and mercy.

Belief in departmental deities—higher than man and lower than the supreme spirit. All religions believe in angels. Spirits are both good and evil. Evil spirit is worshipped to ward off evil.

The Development of the Idea of God.

Religious experience has arisen with the impression of power beyond the individual, greater than his own, and causing him joy and fear. He has associated this first with the major and minor forces of Nature. In Nature some powers have appeared to be superior, and one, usually the Sun, has seemed to dominate all, in the community. Some one individual, by his *Mana*, his power, his 'spirit' has attained a position of supremacy. This is perceptual level.

The higher developments of religion are all associated with the conceptual transcendence of simple feeling

Nevertheless the perceptual impressions always remain and constitute an important factor, this whether with regard to power, to unity, to order and rationality, to the distinction of good and evil or to the experience, etc.

Thus man has passed from the limited perception of space and time to the concept of an unlimited extension of birth and so to the infinity and omnipresence of the power beyond. From the experience of a partial order and partial good to the idea of perfect order and wholly good. Nothing less than a rational ultimate is seen to satisfy beings who have passed the threshold of the conceptual. Not merely the experience of the *rishi*, prophet and the saint, but that of the generality of mankind in the empirical source of religion has led to the affirmation of the conception of the being in whom the highest ideals are embodied.

THE SOUL

The Nature, Origin and Destiny.

Preanimistic stage at which simple impressions of Nature "without" arouse simply particular types of emotions "within."

The phenomena of sleep and dreams have played a part in bringing men to the distinction of soul and body. The development of thought and language have led to a clear self-consciousness, to a profounder understanding of qualities of the soul but at no stage should the form of expression be considered to express all that was or is immediately felt.

Soul's capacity of abstract reflection, in mathematics, or in that type of meditation, sometimes metaphysical, sometimes contemplatively mystical, has made apparent the other aspects of the nature of the soul. Meditation and reflection in other words is responsible for the growth of the idea of soul.

Shintoism.—Ancestor-worship is very common among Chinese and Japanese and this has helped not simply to express but also to emphasise the belief in the reality of the soul.

The Babylonians do not appear to have any clear belief as to the soul. Life they associated with the liver on account of its containing the largest amount of blood.

Greek conception of soul, it is really difficult to determine. Empedocles makes soul to be compounded of all the elements, and at the same time considers each of them to be a soul. Democritus regarded the soul as identical with Mind (nons), which belongs to the class of primary and indivisible bodies, and possesses the faculty of movement . . . Anaxagoras sometimes seems to distinguish Soul and Mind, but he really identifies them, except that he makes Mind the principle of all things. For Herakleitos it is that which is least corporeal and in constant movement. Anekimandu had said : “ As our Soul which is air hold us together, so breath and air encompass the whole world.” To Kerakleitos and the religious teachers of his time the soul was more real than all else, and wisdom or thought were its chief attributes. “ You cannot find the boundaries of soul : so deep a measure with it.”

According to some Pythagoreans soul is a mere movement or accompaniment of the body. With Plato man's soul is of the same nature as the universal soul. “ The soul is in essence active, the motion which of itself can move itself.” According to Aristotle human soul has mind (nons). The soul is of both rational and non-rational factors, and well-being consists in the establishment and order in it. In the sphere of practical religions emphasised the distinction of soul and body. Body “ tomb of the soul.” Even in the fifth century spiritual purity is regarded as a positive state of blessedness

In Neoplatonism soul is an intermediary between

spirit and the world of perception. "The individual is a microcosm striving after unity and universality. We do not know ourselves. The soul feels itself an exile and a wanderer from God. It is impelled by some sickness to struggle up towards the world of spirit."

The doctrine of the soul in India is mainly work of meditative philosophers rather than of ethical teachers. The various forms of belief: "The thesis of Buddhists that as consciousness is momentary, soul is the concatenation of (such) moments;—Carvakas—soul is coterminous with body; Jains—soul is commensurate with the elephant's body in the elephant, and with ant's body in ant; Yadavas—soul is a fragment of God (Brahman); Soul is a division of the conditioned God; soul is a fabrication by nescience, soul is multiplied by reason of the limiting inner organ (Antahkaran).

Upanishadic.—Relation between soul and food, soul and breath. Some expressions appear to give the soul a size, but they are rather attempt to express its control over the body. Gram, rice, or barley, measure of thumb, a span, size of head, etc., etc., give the idea of the size of the soul.

Soul to the body is compared to riding a chariot. It is in the soul that God is to be known. The teaching of Upanishadic came to be regarded as making no distinction between the individual soul and God. But other movements, especially those associated with a theistic view of reality have insisted on the persistence of a difference between souls. "The individual soul is a separate entity in each body which is by nature subtle and blissful." The Naishnavita conception of the soul regards it as though unbodied in matter, and itself forming as it were the body of God. Birth is because of the soul's bondage with body, and death is because of its severance therefrom. Hence the nature of the soul is eternal.

The Jaina religion centres around the idea of soul, *jiva* and its attainment of purity, that is freedom from bondage to non-soul, *ajiva*. The soul has life, consciousness, *upayoga*, knowledge and perception, and is potent, performs actions, and affected by their results, is conditioned by its own body, is incorporeal and is ordinarily bound with *karma*. "*Atman* becoming omniscient and all perceiving through its own efforts obtains the infinite bliss which transcend sense experience which is free from any imperfection, which is spiritual and self-determined."

In the early Buddhism it is a temporary collocation of experiences (mental and physical), which collocation and experiences are continually changing. In Buddhist literature the nature of the soul is a problem of frequent discussion.

The Mahayana schools (like Upanishadic) came to acknowledge beyond or within the transitory and changing, beyond or within the finite self, a fundamental reality frequently called mind which term equalled with mental experience of finite self.

Zoroastrianism.—Soul is 'invisible' and by nature a good spirit. There is no systematic or detailed consideration of soul or constituents of man. Soul has a definite test in its life in the world, that of fighting against evil. It strives to go back to its original spiritual abode of 'intuitive wisdom.' The soul is "the ruler over the body," "just as the head of a family conducts the household, and the rider the horse, so does the soul conduct the body."

For the Jews generally man was body and soul, and the term "spirit" has indicated the nature of the soul. Christian conception developed through the influences of the teachings of Jesus and the interpretation of St. Paul of his own religious experience. Jesus gave distinctive character to soul and made it superior to body, and said that its highest bliss lay in a communion with God. St.

Paul used the term spirit to express the inner character of the soul. Distinction of soul and spirit shows that the soul has an inner life which is to be distinguished from its psychical apprehension of the physical body and the physical world.

Quran has nothing to say regarding the nature of the soul. There are these words associated with the idea : *ruh* : spirit; *nafs* : soul; and *qalb* : heart and mind.

Belief in transmigration has never been general amongst Zoroastrians, Jews, Christians or Muslims, though individuals in these religious communities have professed it.

Immortality.—For Plato and Aristotle it is the rational alone in the human soul which continues to exist. It is in the sense of returning to the divine unity from which it came that the stories conceived the immortality of the soul. This doctrine was generally accepted. For Neoplatonism, 'the soul is life and being in itself' and life can never die.

The belief in personal mortality has been prominent feature in Zoroastrianism, in later Judaism, in Christianity and Islam. Immortality for Zoroastrianism implies a permanent life in communion with Ahura Mazda. The belief in resurrection is also common with the above-mentioned communities. Zoroastrianism stands for universal salvation and immortality.

SIN AND SUFFERING : SALVATION AND REDEMPTION

Religion is more than a cure of the human ills of sin and suffering and the provision and such cure has been a fundamental motive in the origin and development of all great religions.

Suffering arises from the non-satisfaction of passions demands of human nature. Man looks beyond his own immediate nature to obtain satisfaction. After animistic stage has reached man has appealed to gods or God for relief from the suffering. Development of culture and civilisation, arts, science and religion a source of redemption and salvation.

Buddhism originated in large measure as a way of redemption from suffering and has always been preached essentially such. It might with good reason be maintained that Buddhism has no religious conception of sin. As wrong desire is the root cause of all suffering, according to Buddhism the way of redemption is ultimately that of the transcendence of such desire.

“ Suppress desire, then misery’s suppressed

From misery suppressed, suppressed is pain.”

“ Cast out the passionate desire again to be.” “ Get them away from life—lust from conceit, from ignorance, and from distraction’s craze.” “ Throw off the chain of birth and death.” “ Through birth after birth suffering continues.”

For Jainism evil may be said to be in imperfection. Idea of suffering not prominent. The way of redemption is primarily through right vision, that is, insight leading to perfect knowledge, thence to perfect conduct, and to reach perfect conduct, and to reach perfect knowledge there are forms of concentration and meditation.

For the Hindu of the age of Rigveda sin was error in conduct or worship which made the God angry with the worshipper and so unwilling to protect or prosper him. Hinduism looks for escape from rebirth, because birth denotes the continuance of the condition of finitude. It is in this form of escape from rebirth that the idea of redemption and salvation is most frequently present in popular Hinduism. For the more philosophical redemption is

essentially received as release from delusory 'self,' after which there is equanimity of mind, a state of rest and peace, which is the characteristic of the divine. There are three ways by which this condition may be approached and attained, which may be briefly dominated: *karmamarga*, the way of action; *bhaktimarga*, the way of devotion; *gnanamarga*, the way of knowledge and complete insight. True action does not think of individual self and is unattached.

Bhaktimarga may be interpreted as emotional worship of one or more personal incarnation of the deity, as for example Krishna, Rama, and the Mother Goddess. Or it may be taken to mean the emotional love and kindness directed to all, as the mode or principle of conduct. Indian thinkers would have us believe that the highest stage is achieved only through *gnanamarga*. This again is capable of interpretation as knowledge of the sacred scriptures, or as an immediate knowledge of God attained through meditation and as it was intuition. Of these three paths the Hindu may and most often does use all as far as in him lies. Those who have given themselves up to "religious" life especially as ascetics also practise certain forms of control and meditation by which they reach certain state of *samadhi* or mystic trance. The genuine *yogi* is probably the exception rather than the rule: nevertheless some of the practices such as regulation of the breath and fixing the attention are aids widely used in the preparation for the contemplation leading to calm and equanimity of mind.

But in the utterances of the saints there is evidence of a profound sense of man's inability, unaided, to obtain salvation and redemption: not by knowledge, nor by devotion, but only by grace of God can peace be attained.

Zoroastrianism.—Evil due to the action of spiritual beings, but predominantly of the chief evil spirit,

Ahriman. Suffering comes to the sinner as punishment. "The body of this world is punished because of the sins of the invisible soul."

The way of redemption from the evil is that of conflict of good thought against evil thought, good words against evil words, and good deeds against evil deeds. The predominant tone of the religion is distinctly ethical. "To live in fear and falsehood is worse than death." Religion is the medicine of the soul. Although Zoroastrianism throughout has insisted on the conflict of good and evil, it has never intended to identify this distinction with that of matter and spirit. It definitely opposes forms of ascetic repression of the physical.

Amongst the Jews grows up with a uniqueness and intensity as with no other ancient people, a consciousness of sin as an impurity of the soul which causes the greatest suffering in the sense of alienation from God. Sin contaminates man; it desecrates the divine image with him, and separates him from God. In Psalms there is a true spiritual conception of sin as an impurity of soul which makes a barrier between the man and God. The religion of the Jews is inseparable from the conviction which pervades their whole history that God is in close and continuous personal relation with them. It is this which gives to sin its chief character of that which in some way breaks the happy relationship. But it is also the ground for the basis of overcoming sin: repentance and forgiveness.

In his parables Jesus has also represented sin as a self-willed rupture of a personal relationship between men and God. In Christianity suffering is not regarded as a purely individualistic matter as due to the sufferer's own sin in each and every instance. The crucifixion of Jesus, one of the central facts of Christianity, negates according to the Christian view, once for all the belief that suffering is always co-ordinate with an individual's own sin. Suffer-

ing sometimes being a means by which good is achieved, the chief task is not that of the eradication of suffering. The ultimate attitude of Christianity in fall of suffering is that of Jesus: "Have faith in God." Christianity also insists that if the attitude is right, suffering leads to an increase in love, and that in the experience.

Original of sin of Adam and Eve, it is believed, has affected all human life for ill, introducing an element of sinfulness or corruption into human nature itself, passing on through birth from one generation to the next.

Quran.—Sin is pride and disloyalty to God. Sin is also the service of *Iblis*, who first led man to disobedience. The punishment of sin may be escaped by means of repentance and forgiveness by God. Death-bed repentance is not acceptable.

Sikhs.—Sin is distinctly an attitude of the mind which keeps man from devotion to God. As its root is pride, the Guru urges: "Mediate on God's name: sins of births shall be washed away and pride vanish from thy heart." It is asked how can a wall of mud become clean? And again: "O Guru, be merciful to us sinners, saith the slave Nanak, we are thy dogs." Salvation is regarded as a divine matter of grace. Compared with Hinduism the position is most similar to that of Vaishnavite Bhakti saints.

"By association with saints I have been saved. By the association of saints all maladies are healed." (The Sikh Religion.)

Babylonian myth of a dragon (*Tehim*) living in a sea, cause of evil.

India is pre-eminently the land of *Avatars* of the deities. In *Bhagvadgita* the Lord says: "I come into birth age after age; and the motive is to guard the righteous, to destroy evil-doers, to establish the law." The incarnation of Rama is again and again presented as

an act of gracious condescendence 'to redeem his people.' The chief function of the incarnation 'from age to age' must be said to be the conveying of knowledge of the true path to 'God realisation' and to inspire devotion. Nevertheless, the ultimate object is rather that expressed in Bhagvadgita, that is, a redemption from transmigration and rebirth.

If we turn to the sacred literature of Zoroastrianism a doctrine of saviour is found. Saoshyant is the last of the descendant of Zorasthra. He will arrange the affairs of the world and utterly destroy the breakers of promises and servers of idols who are in the realm."

The religion Mithraism which spread over a large portion of Roman empire, becoming the most formidable religious opponent of Christianity also contained the conception of a mediator. Jesus in his life on Earth was in some manner a saviour of men from suffering and sin.

The revelation of the path may be said to be the ordinary conception of the work of the Prophet Mahomet. He is the channel by which God is supposed to have revealed the Quran which contains the knowledge necessary for salvation according to Muslims. Mahomet will also blow down at the final judgment to God to forgive the sinners—except those who associated other gods with Him.

RELIGIOUS PRACTICES

Religious emotions express themselves in action more than in intellectual beliefs. Father of family took leading part in religious practices in the earliest stage when there were no priests. Dancing as a religious practice found among people of unsophisticated mentality. Singing also has a place in religious worship and especially in

Christianity. Religious procession fans up the enthusiasm of devotees and transmits it to others. Of religious practices prayer is the most general. The various postures have some significance from the point of view of practice and mental attitude. The Muslim, as the Zoroastrian, has five periods in the day for prayer. The motives of sacrifices in the sense of implying an offering have been various. There are :—(1) simple offerings made in simple form of adoration; (2) thank offerings for some good received; (3) freewill offerings made to obtain the goodwill of the God; (4) peace offering to propitiate angry God; (5) sin offering for the expiation of guilt; atonement for sin. The object of offerings as food, clothing, jewels, and swords in Shinto worship is primarily the propitiation and pleasing of God. Sacrifice is the soul of Veda. Animal sacrifice is still offered in some forms of Hindu worship specially in that of Durga and Kali. In ancient times animal sacrifices were common in Shinto worship in Japan and Muslim on the Bakar Id.

Human sacrifice is also practised at different parts of the world. Human sacrifice, Purushamedha, is thought to have been practised in India, though whether it can claim Vedic sanction has been disputed. Christianity also points to Christ as the highest type of human sacrifice. Sacrificial offerings are closely associated with sacramental meals. Sacred animals might be partaken in the sacramental meal. Water and fire are agents of purification. Washing and bathing common in old Shinto ceremonies. Muslims wash before prayers, Christian baptism water a symbol of purification from original sin. Bathing in Ganges for orthodox Hindus a form of purification from his sins. Blood is also a purifier. Zoroastrian's purification ceremony are very systematic and clear.

Religion has been largely social in its expression.

FORMS OF WORSHIP

Zoroastrianism recognises five divisions of the day, in three of which Sun is worshipped. Daily worship in the home or 'temple' before sacred fire, the symbol of purity. Yacna ceremony among the Zoroastrians is like a sacramental meal in which they prepare and drink *Haom*.

Jewish worship, mornings and evenings, and especially on the sabbath day consists of singing of psalms, reading of the Law and the Prophets and prayer.

Religions belong to or are as history shows connected:—

- (1) with astronomical facts, the position of the heavenly bodies;
- (2) with agricultural activities;
- (3) with historical personages or events.

THE EMOTIONAL ATTITUDES AND RELIGIOUS IDEALS

Religion is at all stages is a concern of the personality as a whole. Beliefs and practices are intimately related with emotional attitudes.

Simple nature worship includes only elementary forms of feeling. With animism comes a more profound recognition of plurality and more varied feelings. To the spirits are ascribed feelings and intentions similar to those of man. The fundamental emotional attitude at this level is that of trust, either glad and confident or with a halting fear. With Theism or any form of polytheism, anthropomorphically conceived, the primary emotional attitude is that of trust. In the course of development a feeling of friendship, even of kinship and of community with the divine being, or beings, has arisen. Especially in Theism the attitude of man to God has acquired an

ethical character. Obedience and loyalty to God have come to be felt as part of religion.

The rites of initiation are meant to awaken to explicit consciousness of oneness with the community. Public worship as also procession and the celebration of religious festivals, increases the intensity of the feeling. So this is the social unity realising itself in practice.

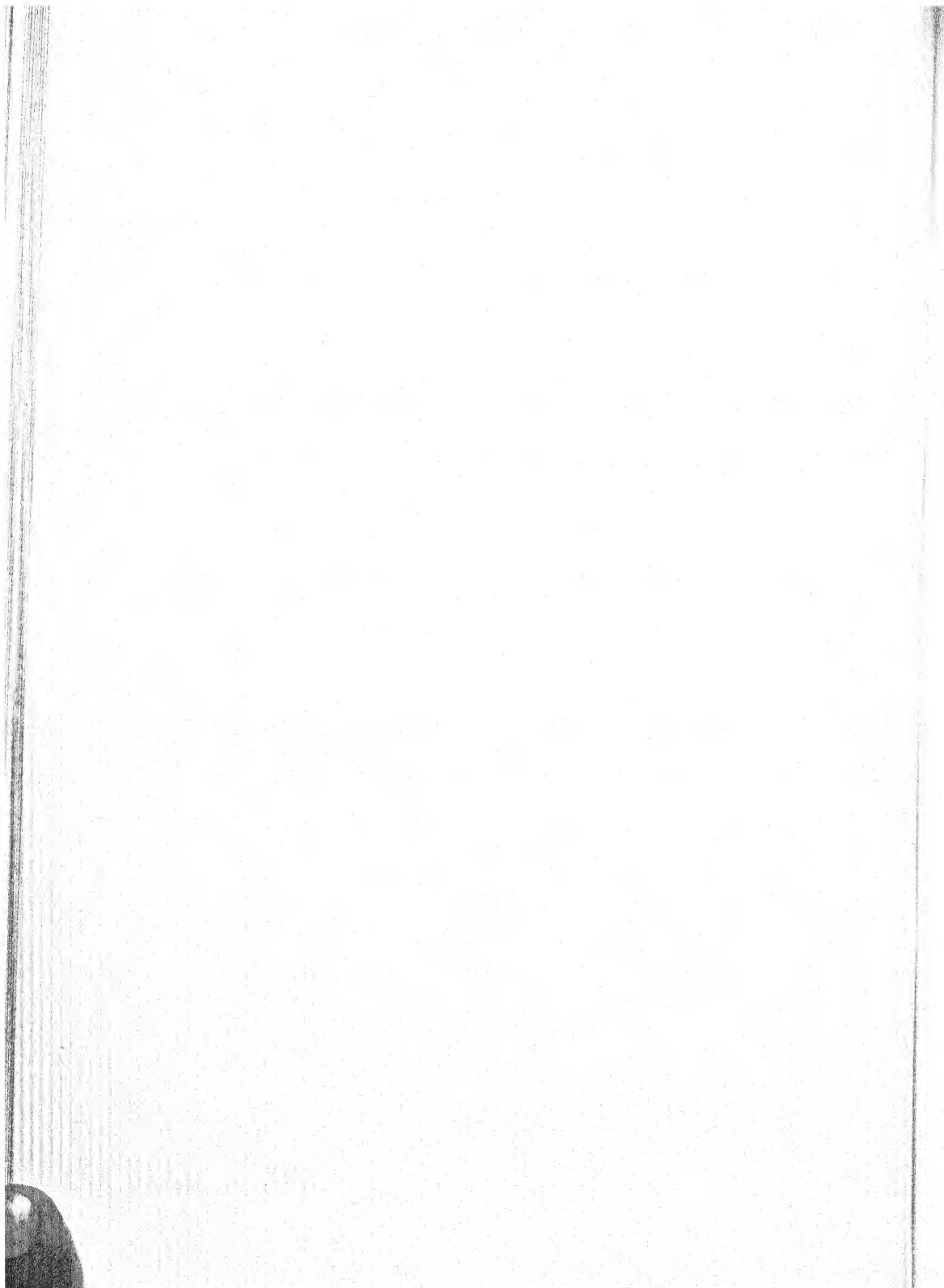
Feelings of discord form a distinct factor in the religious life. The sense of remorse and self-abasement due to the consciousness ' sin ' has been especially intense when felt in relation with God. Repentance and forgiveness are emotional attitudes included in religion.

Suffering often has the effect of increasing the strength of the feeling of unity between the sufferer and those associated with him. Death arouses feeling distinctly associated with religion. The tendency of religion is to transcend the element of conflict that comes between feeling and fact in hope and faith, in the continuance of a spiritual community or its resumption in the further course of experience. Religion in its advance has tended to raise man's feelings above gloomy doubt, and to make him view his life in relation with the eternal rather than in terms of brief period of time.

SCIENCE

SECTION I

ZOOLOGY



ON THE CYTOPLASMIC INCLUSIONS IN THE OOGENESIS OF APPIAS NARENDRA

BY

SHYAM MOHAN SRIVASTAVA, M.Sc.

AND

D. R. BHATTACHARYA, Ph.D., D.Sc.

CONTENTS

INTRODUCTION.

PREVIOUS WORK.

MATERIAL AND TECHNIQUE.

OBSERVATIONS—

- (1) General structure of the ovarian tubule.
- (2) The structure and function of nurse-cells.
- (3) The follicle cells and their activity.
- (4) The Golgi bodies of the oocyte.
- (5) The mitochondria.
- (6) The nucleus, nucleolus, nucleolar extrusions, etc.
- (7) The yolk bodies.
- (8) Centrifuge experiments.
- (9) Fresh coverslip preparations. (The Vacuome).

DISCUSSION—

- (1) The Nurse and Follicle Cells.
- (2) The Golgi apparatus.
- (3) Mitochondria.
- (4) The yolk-nucleus.
- (5) Nucleolar Extrusions.
- (6) The yolk bodies and their formation.
- (7) Intra-Vitam Examination. (The Vacuome).

SUMMARY.

EXPLANATION OF PLATES.

LETTERING.

BIBLIOGRAPHY.

INTRODUCTION

The nucleus of the germ cells had for a long time absorbed the attention of cytologists, and it is only during the last 20 years that the importance of the cytoplasmic inclusions has been realised. For this purpose, insects have often been studied, and have yielded interesting results. So far as investigations on oogenesis are concerned, several orders of insects have been worked upon, but the Lepidoptera have hardly been touched. This work was, therefore, undertaken in the hope of extending our knowledge of oogenesis in this group.

The question of yolk-formation is of paramount interest in the study of oogenesis. At present this problem is in a very confused state, and cytologists are holding widely divergent views about it. The origin of yolk in various animals has been ascribed to almost every conceivable source in the oocyte. The Golgi apparatus, mitochondria, nucleolar extrusions, and the ground cytoplasm have all been shown to play a direct or indirect rôle in the process; and more recently, even the vacuome has been claimed as a yolk-forming cytoplasmic constituent (Hibbard and Parat, '28, Marguerit Parat, '28, and Nath, '31). It would thus seem as if each egg, in this respect, is a law unto itself. Harvey, however, believes that it is inconceivable that such a state of affairs really exists. He points out ('31) that the storage of nutrient material in the egg is one of the most primitive of cytological phenomena, and as such it is to be expected that vitellogenesis in general will be referable to some fundamental method. He has, therefore, elaborated and supported Hogben's earlier theory of yolk-formation, summarising his view as follows: "There is sufficient evidence to suggest that the main type of vitellogenesis will prove to be one in which the mitochondria are the chief synthetic organs, manufactur-

ing yolk from raw material derived from the nucleus as extrusions or as yolk-nucleus and from the exterior by way of test, follicle, or nurse-cells. This material once synthesized is isolated out of the cytoplasmic solution by Golgi bodies. Fat arises by simple condensation of droplets in the cytoplasm under the influence of none of the formed elements." Thus, according to Harvey, the Golgi bodies have only an indirect rôle to play in oogenesis-yolk-synthesis. Bowen ('26), on the other hand, suggested that yolk formation may be the chief function of the Golgi apparatus of the egg, corresponding to the formation of the acrosome of the sperm. Gatenby and Nath have also been consistently insisting on the Golgi bodies having a nutritive function in oogenesis, the fatty yolk bodies being the result of a direct transformation of the Golgi vesicles. The exact method of yolk formation thus remains still a very controversial problem, and the present investigation is expected to throw some light on it.

PREVIOUS WORK

Whereas the history of the cytoplasmic inclusions in the spermatogenesis of the Lepidoptera has been worked out by such pioneers in cytology as Meves, Gatenby, and Bowen, the oogenesis from the same point of view has been rather neglected. Dederer's paper ('15) on the oogenesis of *Philosamia cynthia* is almost confined to the study of chromosomes, and she gives no account of the cytoplasmic inclusions beyond mentioning a few facts about the spindle-bridge.

Gatenby's paper on Lepidopteran gametogenesis—the first of the series on cytoplasmic inclusions in germ cells ('17) is mainly devoted to the study of spermatogenesis and only passing references about oogenesis from a comparative point of view are made. He points out that "the

oogenesis provides problems somewhat more difficult to follow and perhaps also less attractive, for in the early stages it is difficult to find individual oogonia and oocytes sufficiently clear for study, so crowded are they." The species he investigated were *Smerinthus populi*, *Pieris brassicae*, and *Orgyia antiqua*. He finds that the mitochondria in the primary oogonium lie as a closely massed crescentic cloud of granules towards one side of the nucleus. At the time when the primary germ-cell is dividing and sometimes afterwards in the female, the mitochondria resemble in shape rods rather than spheres or grains and they lie quite near and even envelop the spindle-bridge. In the female they are never removed far from the nucleus, are always minute and never have formed within them a chromophobe medulla as in the male. In the early oocytes he describes a 'micromitosome' (a single deeply staining granule, also present in the male germ-cell). He says about this that it may be possible that the nurse-cells differ from the oocytes in the absence of the micromitosome. There is no mention of Golgi bodies and no account of yolk-formation.

Blockmann ('84, '87) first described 'secondary nuclei' and 'symbiotic bacteria' in the oocytes of ants. Since then these two doubtful elements have been found in several cases in insects of different orders. Secondary nuclei are best known in certain Hymenoptera. In some Lepidoptera also, as well as in Diptera, Hemiptera and Coleoptera, Stuhlmann (referred to by Gatenby in *Cytoplasmic inclusions of germ cells* Part 6) has described similar elements. Symbiotic bacteria, again, are also well known only in the Hymenoptera and Orthoptera, but as referred to by Wilson ('28) they have also been reported in some Lepidoptera where they are rod-like in form and divide by fission. Recently such unicellular symbionts have been cultivated in artificial cultures outside the eggs.

So far as investigation on the cytoplasmic inclusion in the oogenesis of other orders of insecta are concerned, we might make only brief references of the important findings. The orders studied include Hymenoptera, Diptera, Hemiptera, Coleoptera, Orthoptera and Odonata.

An investigation of this kind has been carried out by Peacock and Gresson ('27) and Gresson ('29) on certain Tenthredinidae (Hymenoptera). They have described accessory nuclei and their threefold origin from the nuclei of the nurse-cells, oocytes and the follicle cells.

The earlier work of Gatenby ('20) on *Apanteles* (Hymenoptera) deals mainly with the secondary nuclei and the so-called germ-cell determinant. The latter, he found, were cytoplasmic in origin but had nothing to do with the mitochondria. He has also recorded some interesting features about the mitochondria themselves. He finds that in each ovarian element (oocytes, nurse-cells, and follicle cells) they have a special character. In the follicle cells they remain unchanged and in the nurse-cells they become numerous and fine and closely grouped around the nucleus. In the oocytes, on the other hand, the history is quite different. In the early stages, here, they tend to lie around an archoplasmic sphere and gradually spread around the nuclear periphery, and then become uniformly distributed in the cytoplasm. Before this dispersal, however, they lose their granular appearance and become at first elongated and then filiform. Although yolk appears for the first time at the periphery in the mass of mitochondria, he found nothing that could suggest the metamorphosis of mitochondria into these yolk bodies. No mention is made of Golgi bodies.

Hegner's studies on the germ-cells in Hymenoptera ('15) are concerned mainly with the differentiation of oocytes, nurse-cells and follicle cells; and also deal with

secondary nuclei and bacteria. Hogben ('20) also deals with the secondary nuclei and the germ-cell determinant besides the history of the chromatin. In a later paper on the cockroach he mentions that he observed the formation of yolk in Hymenoptera from nucleolar extrusions, but does not give a detailed description of this phenomena as he gives in the cockroach.

Nath ('24, '29) has worked out the cytoplasmic inclusions in the oogenesis of the mosquito, *Culex* (Diptera). He finds that the nutritive material of the oocyte comes from the nurse-cells. The latter have enlarged nuclei with chromatin distributed in the form of regular fragments on a network of linin fibres. The cytoplasmic boundaries of the nurse-cells break up and the continuous sheet of protoplasm along with the nuclei is gradually absorbed by the oocyte. He further describes very interesting changes in the morphology and the staining properties of the oocyte nucleolus but does not record any nucleolar extrusions. He found Golgi vesicles with characteristic duplex structure in the oocyte, nurse and follicle cells. Some of those in the oocyte only deposit free fat in their interior. Proteid yolk is formed *de novo* in the cytoplasm. No mitochondria are described.

Bhandari and Nath ('30) have worked on the oogenesis of the red cotton bug, *Dysdercus cingulatus* (Hemiptera). They describe a nurse-cell chamber at the proximal end of the ovarian tubule and oogonia and oocytes down below. Each oocyte is connected by means of nutritive roots with the proximal group of nurse-cells. Down these roots liquid food material flows representing broken down contents of the nucleus of nurse-cells. This appears at the distal end in the form of thick, hyaline, somewhat gelatinous and slightly osmiophilic fibres which they have labelled as nutritive fibres. Golgi bodies from the nurse-cells, however, pass down intact into the oocyte. No

mitochondria could be found in the nurse-cells. In the oocyte itself the characteristic duplex Golgi vesicles give rise to fatty yolk, the interesting feature about them being that they are fatty from the very beginning and in the earliest oogonia form a circum-nuclear ring. Mitochondria are granular and remain inactive and insignificant throughout the course of oogenesis. There are plentiful nucleolar extrusions lasting throughout the period of development of the egg and they give rise directly to the albuminous yolk bodies. Although neutral red was used no mention is made of the occurrence of vacuome in the animal.

In the Coleoptera, we have the work of Nath and Mehta ('29) on the firefly, *Luciola gorhami*. The cytoplasmic inclusions are very similar to those in the cotton bug. The Golgi bodies are fatty from the very beginning and give rise to Golgi yolk. Mitochondria are granular and play no part in vitellogenesis. The nucleolus shows change in its staining properties during different stages of the development of the oocyte. Nucleolar budding lasts throughout oogenesis and the nucleolar extrusions directly give rise to yolk. The authors observe that there is no doubt that the nucleolar extrusions pierce the nucleolar membrane as whole bodies. Previous workers on beetles were mainly concerned with nuclear phenomena, secondary nuclei and the germ-cell determinants. The work of Weimann and Nussbaum-Hilarowice on certain beetles is also referred to in the chapter of discussion.

The cockroach (Orthoptera) has been studied by Hogben ('20), Nath and Piare Mohan ('29), Gresson ('31) and lastly by Ranade ('31). The first two workers in *Periplaneta americana*, and Gresson in *P. orientalis* have found remarkable nucleolar extrusions which give rise directly to albuminous yolk bodies; but Ranade working

on the former species has been unable to confirm these findings. Proteid yolk according to the latter arises from the mitochondria. Hogben in his paper made no mention of Golgi bodies or fatty yolk, but the other workers are agreed that this kind of yolk arises directly from the Golgi bodies. Presence of bacteria in the oocytes has also been recorded by all. Lastly, only Ranade has given an account of the vacuome in this animal. He has found Golgi bodies and vacuome to be independent structures although intimately associated in the early stages. The vacuome undergoes a dispersal similar to the Golgi bodies. Infiltration of Golgi bodies from the follicular epithelium to the egg has also been described by the last named worker.

In the Odonata we have the work of Hogben ('21) on the dragonfly, *Libellula depressa*, in which the earlier work of McGill has been criticised. This paper deals primarily with the nuclear organisation, but mention is made of the origin of yolk and of the problematical yolk-nucleus. Hogben finds that in this insect as in others studied by him yolk arises from nucleolar extrusions which are very much like those in *Periplaneta*. The yolk-nucleus is regarded to be the mitosome or chondriome of the oocyte, being the area in which the mitochondria are aggregated and which resists injurious fixation in young oocytes. The mitochondria behave as in *Apanteles* described by Gatenby, but no filamentous mitochondria could be seen.

From the above record of work on insect oogenesis it would be seen that in the insecta wherever fatty yolk has been found it has been shown to be formed from Golgi bodies; that nucleolar extrusions are very common and in many cases give rise to albuminous yolk; and that the mitochondria are generally insignificant inclusions taking little part in vitellogenesis.

MATERIAL AND TECHNIQUE

The butterflies of the species *Appias narendra*, were collected in the gardens round about Allahabad. The two ovaries are more or less compact bodies lying in the abdomen on either side of the alimentary canal. Each consists of four egg tubes—the ovarioles, which are attached at the anterior end by means of terminal threads and opens at the posterior end into the oviduct. The ovarioles contain eggs in different stages of development, those at the posterior end being ripe and those at the apex very small.

For the study of the Golgi apparatus the methods employed were Cajal's uranium nitrate method, DaFano's cobalt nitrate modification, the latest modification of the Mann-Kopsch method by Ludford and the Kolatchev technique. It was found that the silver methods gave less satisfactory results.

Excellent results were obtained with the Ludford and Kolatchev techniques. In the Ludford method the material was fixed in Mann's fluid (equal parts of saturated saline solution of corrosive sublimate and one per cent osmic acid) for eighteen hours; it was then washed thoroughly in distilled water, for about an hour, and then kept in two per cent osmic acid at 35°C in an electric bath for three to four days. The reduction of the osmic acid was completed by keeping the material in the same bath in distilled water for one day. It was then dehydrated and embedded. Sections were cut four μ in thickness. Bleaching was done by Henneguy's method—treating the sections with one per cent aqueous solution of KMnO_4 for a few seconds and then with four per cent oxalic acid for one to two minutes. Some slides were studied unstained, while others were counter-stained with neutral red-acetic as recommended by Ludford ('25) and also by the Champy-Kull method—Altmann's acid fuchsin, tolui-

din blue, and aurantia. Sections were mounted in pure canada balsam (Baume du canada) as ordinary xylol-balsam exposed to light soon becomes acidic and osmic sections mounted in this medium lose their colour and get spoilt in a short time.

The procedure in the Kolatchev technique was carried out as recommended by Nassonov. The material was fixed in modified Champy's fluid (a mixture of 2 Vols. 3 per cent Potassium bichromate, 2 Vols. 1 per cent chromic acid, and 1 Vol. 2 per cent osmic acid) for 16 hours and washed in running water overnight. The tissue was osmicated as in the Ludford technique, and the subsequent treatment to obtain the finished sections was also similar. This method also demonstrates mitochondria nicely.

Variations in the period of osmication were tried and it was found that the optimum was reached after osmication for 60 hours. Even during this time the tissue became considerably brittle and the ovarian tags invariably broke up. If osmication is prolonged the individual ovarian beads break up completely at the slightest touch of the brush.

The silver methods of Cajal and DaFano were followed as recommended by Bowen ('25). The sections were toned with 2 per cent gold chloride and 5 per cent hypo solution and counter-stained with Gatenby's safranin and light green, as well as with iron-alum-haematoxylin. In these methods fixation in cold as recommended by Bhattacharya ('27) was also tried and slightly better results were obtained. But even with this modification there was considerable shrinkage of the tissue and the younger oocytes were so crumpled that it was impossible to study them. The older oocytes were, however, better preserved. Cajal gave better fixation of the follicular epithelium than DaFano, probably on account of the presence of uranium nitrate in the former fixative.

For mitochondria the following fixatives were tried: Flemming-without-acetic (F. W. A.). Champy-Kull, Regaud, Regaud-Tupa and Zenker-Helly. Of these F. W. A. gave the best results and next came Champy-Kull. The other methods also gave satisfactory results. Bulliard's method ('24) for filamentous mitochondria (post-chromatisation for over a month after Regaud fixation) was also tried with partial success.

For fixation in F. W. A., Gatenby's strong formula (diluted twice) was used (1 per cent chromic acid 4 parts and 2 per cent osmic acid 1 part). The fixation was done for 20 hours and washing overnight. Sections were cut 5 μ in thickness and were stained with iron-alum-haematoxylin and Champy-Kull's triple stain. The Champy-Kull and the Regaud techniques were followed exactly as given in the Vade-Mecum ('23). In Regaud-Tupa (3 per cent Potassium bichromate 80 vols., neutral formol 20 vols., and uranium nitrate 1 gm.), fixation was done for 48 hours (changing fluid every 6 hours) and post-chromatisation was omitted. This fixative has been highly recommended by Policard, Benoit, Avel, Parat and Bhattacharya. In Zenker-Helly, the fixation was done in modified Zenker's fluid (replacing acetic acid by formalin) for 24 hours. The material was then washed, dehydrated and embedded. Staining in all cases was done by iron-alum-haematoxylin and Champy-Kull methods.

For the study of nucleolar extrusions Bouin's picro-formol and Carnoy's acetic-alcohol were employed. These fixatives dissolve out lipoidic inclusions like the Golgi bodies and the mitochondria, but fix the nucleus and its derivatives. The sections (6 μ in thickness) were stained with Mann's methyl blue-eosin and iron-alum-haematoxylin. Proteid yolk was also well demonstrated in these slides. Zenker-Helly also gave quite good results so far as the nucleolar structures are concerned.

For the study of yolk the osmic preparations and the F. W. A. and Champy-Kull slides were of great help. In Kolatchev slides both the fatty and albuminous yolk bodies were beautifully demonstrated. Pure turpentine, free from all traces of acid, was used to dissolve out fatty yolk bodies. Moreover, the nature of yolk bodies was further studied by fresh cover-slip technique, as described later on, by means of osmic acid, Sudan III and Scharlach R (test for fat).

All the results obtained with the routine laboratory techniques, as mentioned above, were verified and confirmed by intra-vital studies. Although vital stains had been used before by Moellendorff and others, the credit of insisting on this mode of treatment for the demonstration of cytoplasmic inclusions goes to Parat. The most useful vital stains from our point of view are neutral red and Janus green B. The former demonstrates the vacuome and the latter mitochondria. No specific vital stain for Golgi bodies is known at present.

There are two methods of vital staining. Firstly, intra-vital, in which the stain is injected into the living animal and then the tissues are examined; and secondly, supra-vital, in which the tissues are first removed from the body and then stained in dilute solutions of the dye. With the present material the former method did not prove successful. The insects are also delicate and in captivity they do not live in a healthy condition for more than an hour or so. Moreover, there is considerable difficulty in injecting the dye in the abdomen. Supra-vital staining with neutral red and Janus green B was, however, tried with considerable success.

The stock solutions of these dyes were prepared as recommended by Parat and Bhattacharya ('27), i.e., by dissolving 0.1 gm. of the dye in 50 cc. of 6/1000 salt solution. The stains were then placed in an electric bath at 38°C.

for 24 hours and afterwards cooled thoroughly. This solution was diluted before use by adding a few drops of the dye to every 25 cc. of Ringer's salt solution for 20—30 minutes, and examined from time to time under an oil immersion lens with artificial light.

Fresh cover-slip preparations without any staining were studied. 2 per cent osmic acid was used for varying lengths of time for the examination of the true nature of Golgi bodies and the fatty yolk bodies as recommended by Gatenby, Nath, and Bhattacharya. This mode of treatment has recently been much emphasised specially by Gatenby and Nath and is found to be of great use. Although Osmic acid rapidly kills the cell, it does not introduce the injuries and artefacts that are unavoidable in ordinary fixed preparations. This is clearly borne out by the valuable experiments of Strangeways and Canti ('27). Smears of eggs exposed to osmic fumes were also studied.

Alcoholic solutions of Sudan III and Scharlach R were used as tests for fat both on the living ovarioles as well as on formalin-fixed material.

For the demonstration of Golgi bodies and vacuome side by side in fixed preparations, Beam's new method ('30) was tried. The ovaries were first stained in a dilute solution of neutral red (prepared as above) for about half an hour. They were then fixed in Mann's fluid for half an hour and in Champy's fluid for 20 hours separately. Both were then post-osmicated as in the Ludford and Kolatchev techniques. It was found that the method did not give very satisfactory results. The best results were, however, obtained by using a dilute solution of neutral red for half an hour or so, and then introducing 2 per cent osmic acid under the cover-slip, as recommended by Bhattacharya and Das ('29).

OBSERVATIONS

1. *General Structure of the Ovarian Tubules.*—

Three regions are recognisable in an ovariole (Text Fig. 1 is a schematized representation of the entire tubule based on the study of fresh cover-slip mounts as well as the finished sections): (1) the 'terminal filament,' which is the slender thread-like prolongation of the peritoneal layer, (2) the 'germarium,' which forms the apex of the ovariole below the terminal filament, and which consists of a mass of small undifferentiated cells from which are differentiated the oogonia, the follicle cells and the nurse-cells, (3) the 'vitellarium,' which constitutes the major portion of the ovariole and contains the developing oocytes and groups of nurse-cells in a linear series alternating with each other. One nutritive and one egg chamber lie in each section of the ovarian tube which is externally visible as a swelling. Each oocyte is surrounded by a well marked follicle.

As only adult specimens were studied the germarium in the ovarioles formed only a comparatively small portion of the entire tubule. In some cases rosettes of cells were seen in it connected by means of 'Spindle-bridges.' The differentiating oogonia and nurse-cells are so minute and crowded together that it is not possible to study their inclusions.

2. *The Structure and Function of Nurse-Cells.*—

Before describing the inclusions in the oocytes it is necessary to describe the structure of the nurse-cells and the part they play in the nutrition of the oocyte, as well as the phenomena associated with the follicle cells.

As mentioned above a group of nurse-cells is associated with an oocyte, their number varying from two to six. The associated nurse-cells may be said to form a nurse-cell chamber. The oocyte is generally surrounded by a single layer of follicle cells. At first, the group of nurse-cells attached to an oocyte is larger than the latter, but as

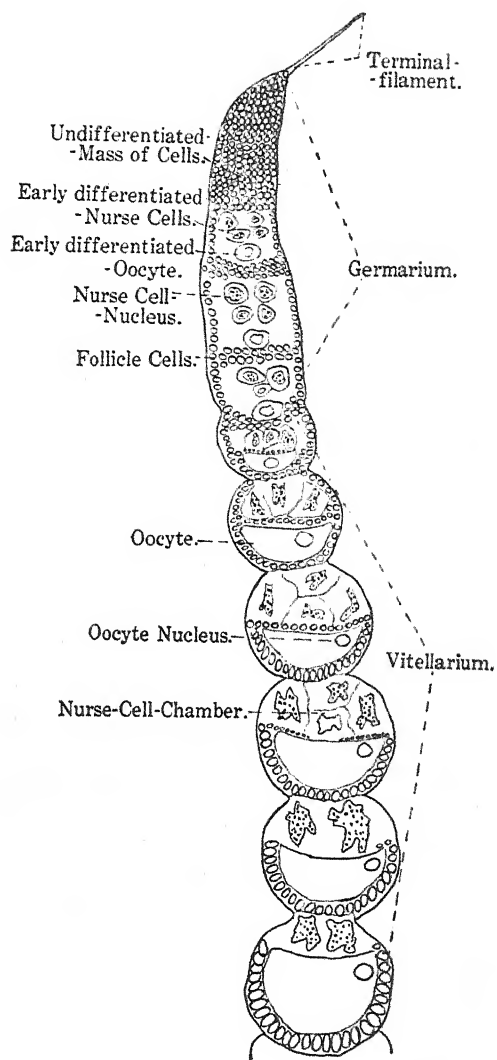


Fig. 1

the oocyte develops there is a reversal of their respective sizes. This is apparently due to growth of the oocytes at the expense of the nurse-cells. When the oocyte becomes mature there is no trace of nurse-cells left and only a single-layered follicular epithelium is present completely surrounding the egg.

As is usually the case the nurse-cells have a large vesicular and often a branching nucleus and a comparatively small amount of cytoplasm (Fig. 19, pl. 3). During the early stages in their chambers the nurse-cells are sharply marked off from one another, but later their boundaries become indistinct; and finally even disappear (Fig. 23, pl. 3), so that the nuclei are surrounded by a common cytoplasm formed by the fusion of the cells. The nuclei are very prominent structures from the earliest to the latest stage in the existence of the nurse-cells. The nuclear contents consist of a faintly staining reticulum with chromatic masses and granules distributed along its course (Fig. 23, pl. 3). These masses are visible in the fresh cells. They stain bluish black with haematoxylin, red with acid fuchsin and are greyish in osmic preparations.

The cytoplasm of the nurse-cells shows inclusions of both types, viz., mitochondria and Golgi bodies. The mitochondria are seen as a number of granules as well as minute filaments in F. W. A. and Kolatchev preparations. They stain darkly with iron-alum-haematoxylin and pinkish in acid fuchsin, and are grey in unstained osmic slides. They are distributed at random and show on special concentration on the cell boundaries as do the Golgi bodies (Fig. 14, pl. 2). The latter can be seen in the earliest differentiated nurse-cells (Fig. 1, pl. 1) as a number of small granules scattered in the cytoplasm: in the fully grown chambers they are present in plenty and are well demonstrated in Ludford and Kolatchev slides. They are not so well seen in the silver preparations. They

are dispersed in entire cytoplasm, but show a special concentration on the separating membranes of the several nurse-cells in a chamber (Figs. 7 and 8, pl. 1).

At first the oocyte is separated from the nurse-cells by an intermediate layer of follicle cells, or in its occasional absence by a well marked partition. Later on these follicle cells disintegrate and the separating membrane disappears in the middle, so that the cytoplasm of the oocyte becomes continuous with that of the nurse-cell chamber through a definite channel (Fig. 8, pl. 1). Hosts of Golgi bodies of the nurse-cells travel into the oocyte. The contiguous walls of the nurse-cells which are very faintly marked are covered with these Golgi bodies on their way to the oocyte. Through the passage formed between the chamber and the oocyte they pass into the latter in an irregular fashion, and get mixed up with the Golgi elements of the latter. These two types cannot now be distinguished from each other. The mitochondria also pass into the oocyte from the nurse-cells, but the spectacle presented is not so striking. Nevertheless, they pass down haphazardly in large numbers. Thus, it is clear that both the Golgi bodies and the mitochondria of the oocytes are reinforced by a passage of similar elements from the nurse-cells.

Not only is there a passage of the cell inclusions from the nurse-cells into the oocyte; a streaming of the united cytoplasmic mass of the nurse-cells into the oocyte occurs, and this must serve as food material for the developing egg. This cytoplasmic flow is prominently seen in practically all the fixatives (Fig. 23, pl. 3). The inflowing cytoplasm occupies an area extending from the chamber to the middle of the oocyte. This area takes stain deeply thus standing clearly marked out from the cytoplasm of the egg. As this intrusion of nurse-cell cytoplasm takes place, the cytoplasmic and the deutoplasmic inclusions of

the oocyte are pushed away to the periphery and leave a clear space for the inflowing material (Fig. 25, pl. 4). Later on, however, a uniform distribution of these inclusions takes place.

We have never observed either a disintegration of the nurse-cell nucleus or its passage into the oocyte, either in a fragmented condition or as a whole. Neither have we been able to observe any extrusions of nuclear material in the nurse-cell cytoplasm. It is true sometimes one or two granules staining like the nuclear chromatic granules are to be seen in the cytoplasm, but these cases are rare. We are inclined to treat them as artefacts inasmuch as by some mechanical manipulation their displacement may be brought about. If it were a regular phenomenon it would have been more frequent. The nuclei of the nurse-cells in Appias persist in tact, though reduced in size, till the end.

3. *The Follicle Cells and their Activity.*—As mentioned before, the oocyte is generally surrounded with a well-marked single-layered follicle. The cells of this follicular epithelium are of ordinary size with fine cell walls and regularly arranged prominent nuclei which contain a few deeply staining granules (Fig. 15, pl. 2). The cytoplasm contains both mitochondria and Golgi bodies in sufficient numbers. These are of the same type as in the nurse-cells.

The most interesting feature about the follicle cells is that they too, like the nurse-cells, supply their quota of Golgi bodies and mitochondria to the developing oocyte. Here the passage of these inclusions is an irregular process of infiltration.

Each follicle cell contains a number of Golgi bodies demonstrated both by the silver and osmic techniques. These are transported to the periphery of the egg. The cell membranes of the follicle cells and the limiting membranes of the oocyte are thin and offer no resistance to the

infiltrating Golgi bodies. All the stages in the process can be seen under an oil immersion lens (Fig. 16, pl. 3). The infiltration in Appias does not occur in any regular way through any regular passage. The infiltrated Golgi bodies settle down in the cortical region of the egg forming a definite layer which persists for some time. Later, however, they get mixed up indistinguishably with the Golgi elements of the oocyte itself.

Like the Golgi bodies the mitochondria are also infiltrated from the follicle cells into the oocyte. Mitochondria are at present in these cells in the form of granules or minute filaments generally showing a concentration towards the oocyte (Fig. 15, pl. 2). They pass down into the oocyte where they form a very well defined layer in the cortical region. Later they are distributed in the cytoplasm and intermingle with those of the oocyte. This phenomenon has not so far been described by workers on insect oogenesis.

Another type of activity of the follicle cells may be mentioned here. Occasionally it is seen that the follicle cells multiply very rapidly and invade the oocyte. Sometimes this multiplication occurs on one side, sometimes simultaneously all round the egg (Fig. 21, pl. 3). This undoubtedly leads to the degeneration of the egg. We have occasionally observed quite healthy oocytes being thus almost eaten up as it were by the follicle cells.

4. *The Golgi Bodies of the Oocyte.*—Fig. 1, pl. 1, is drawn from unstained Kolatchev preparation and shows the upper portion of the ovarian tubule. The proximal portion is occupied by a mass of undifferentiated cells. A number of minute osmiophilic granules are seen in this mass of cells which are identified as Golgi bodies; but because of the cells being very crowded it is not possible to come to a definite conclusion about the

presence of these elements in all individual cells. Lower down in the tubule we find nurse-cells and oocytes acquiring the characteristic arrangement which has already been described. In the earliest nurse-cells the Golgi bodies are scattered in the cytoplasm. In the earliest oocytes, that can positively be identified as such, we find a number of Golgi bodies situated in a juxta-nuclear position. The nucleus at this stage is very large and prominent and the thin cytoplasm bounding it is very faint. Owing to excessive osmication the Golgi bodies appear as solid granules, and the characteristic duplex structure—a chromophilic rim and a chromophobic centre is not apparent.

Figs. 2—8 are from Ludford preparations and show oocytes in various stages of development. In Fig. 2 we find that the juxta-nuclear Golgi bodies described above have increased in number and now occupy a larger area by the side of the nucleus. The cytoplasm now occupies a larger area surrounding the nucleus and in the region of the juxta-nuclear mass of Golgi bodies it stains more deeply than elsewhere. This juxta-nuclear deeply staining area of cytoplasm, standing in sharp contrast to the general cytoplasm of the oocyte, with the Golgi bodies concentrated in a mass formation is the so-called “yolk nucleus of Balbiani.”

The nucleus with the Balbiani area is at first central but later moves to an eccentric position. The Golgi bodies in this area are crowded together. The majority of them are granular and spherical bodies, but a few crescent-shaped bodies or dictyosomes are also visible. Some of the spherical bodies which have not undergone heavy osmication even show the characteristic osmiophilic rim and the osmiophobic core. The dictyosomes also show an osmiophobic area associated with them. In association with these Golgi elements there are some bigger bodies which are

jet back in colour, probably on account of their being fatty in nature. These have been identified as fatty yolk bodies. Hence fatty yolk formation begins at a very early stage.

The 'yolk nucleus of Balbiani' persists for some time but sooner or later the Golgi bodies begin to get detached from this compact mass and disperse in the cytoplasm. Ultimately, however, the Golgi elements are completely dispersed and no trace of the previous concentrated mass is left. Figs. 4—8 show stages in dispersal.

In the course of dispersal in the cytoplasm the Golgi bodies of the oocyte increase considerably in bulk and number. They are further reinforced by a passage of similar elements from nurse and follicle cells, as has already been described. The fatty yolk formation that had commenced in the early stages continues, and the fatty yolk bodies are clearly distinguishable in osmic preparations on account of their big size and complete blackening. Though a good many of the Golgi bodies are thus transformed into fatty spheres, yet a considerable number remains unchanged in the mature oocyte (Fig. 2^c, pl. 3). These have got a tendency to be concentrated towards the periphery.

The above account of the Golgi bodies is based mainly on osmic preparations but for purpose of comparison and control silver preparations were also examined and the results verified and confirmed. As has already been pointed out the silver methods proved less useful than the osmic ones.

5. *The Mitochondria*.—The mitochondria are best seen in F. W. A. and Champy-Kull preparations stained with iron-alum-haematoxylin as well as with acid fuchsin. For purpose of comparison, however, preparations made by Regaud, Regaud-Tupa, Zenker-Helly, and Kolatchev methods were used and the

results verified. Intra-vitam observations proved to be in accord with the results obtained with the above techniques.

No mitochondrial granules could be properly identified in the undifferentiated cells in the germarium. In the earliest oocytes in which they could be definitely spotted, they were seen to occur as a few faintly staining granules, massed in a juxta-nuclear, deeply staining, crescentic cloud of cytoplasm (Fig. 9, pl. 2). The latter stands out prominently as a cap on the nucleus and we identify it as the 'yolk nucleus of Balbiani' area.

The juxta-nuclear heavily staining area of cytoplasm gradually enlarges till it extends all round the nucleus forming a perinuclear zone. Figs. 9—12, pl. 2. show stages in this expansion. This zone is rather more flocculent than the rest of the cytoplasm. The mitochondria are scattered in this mass as minute granules and stain pinkish with acid fuchsin and deep bluish with haematoxylin in F. W. A. and other preparations. In unstained Kolatchev they are yellowish grey.

The perinuclear concentration of the mitochondria persists for some time, but soon these elements begin to migrate from this zone and disperse in all directions in the cytoplasm. The mitochondria increase considerably in number till the entire cytoplasm is packed with them. With the onset of the phenomenon of the mitochondrial dispersal the perinuclear flocculent cytoplasm begins to disappear till in the end no trace of it is left. After a primary uniform dispersal a peripheral or rather cortical concentration of the mitochondria is seen (Fig. 25, pl. 4). This is probably brought about by the inflow of cytoplasm from the nurse-cells. Later on a uniform dispersal of the mitochondria is once again established. We have already seen that mitochondria of the oocytes receive a quota from both nurse and follicle cells.

The extruded nucleoli are at first basophil in reaction; later they apparently undergo a change in the staining capacity for they stain now more lightly both with methyl-blue-eosin and with iron-alum-haematoxylin. There is thus a change from basophilic to oxyphilic condition without any intermediate amphophil stage. These oxyphilic extruded fragments of the nucleolus sooner or later disappear entirely in the cytoplasm. The manner of their disappearance is such as to indicate a fairly sudden and complete dissolution and diffusion of their substance into the surrounding cytoplasm. The extrusions do not grow or fragment in the cytoplasm, neither do they undergo any uniform dispersal in it. They remain more or less in the vicinity of the nucleus or a little removed from it and disappear from view as development proceeds. They have been found to take no direct part in vitellogenesis.

It may be mentioned here that we have found no trace of secondary nuclei in the butterfly investigated, as has been reported by Stuhlmann in some *Lepidoptera*. We have further found no such structure in the oocytes of *Appias* as the 'micromitosome' described by Gatenby in *Smerinthus*. Again no trace of bacteria in the egg has been observed.

7. *The Yolk Bodies*.—The yolk bodies observed in the present animal are of two distinct types, *viz.*, the fatty yolk bodies and the proteid or albuminous yolk bodies. They can be easily distinguished in Kolatchev and Ludford preparations where both types are fixed excellently. In the unstained slides the Golgi yolk is black (slightly less in Kolatchev than in Ludford) and the proteid yolk is greyish. In preparations stained with acid fuchsin or with iron-alum-haematoxylin the proteid yolk bodies take a slightly pinkish or bluish stain while the fatty yolk bodies remain still

blackish though slightly less so than in unstained sections. In the fully developed oocytes they can be seen distributed uniformly in the cytoplasm (Fig. 16, pl. 3).

In finished Champy-Kull or F. W. A. sections the proteid yolk bodies are beautifully demonstrated, but the fat bodies are generally very poorly fixed and often appear as vacuoles (Fig. 15, pl. 2). This is probably because the amount of osmic acid in the fixative was insufficient; also it has much less time to act in these fixatives than in the Kolatchev or Ludford techniques. Moreover, the action of xylol and alcohol in the course of mounting the sections tends to remove poorly fixed fat. It has been noticed that when preparations are made rapidly and mounted in neutral balsam fatty yolk spheres are better preserved. In DaFano slides fat is not fixed at all and we invariably find vacuoles in place of fatty yolk bodies. In these preparations proteid yolk is also rarely seen. Bouin and Carnoy both fix proteid yolk bodies nicely, especially in the later stages of development, but they always give a negative picture of fatty yolk bodies in the form of vacuoles (Fig. 17, pl. 3).

An account of fresh coverslip preparations is given later but it may be mentioned here that two types of yolk bodies were easily distinguishable in these and the results arrived at were confirmatory to those obtained with fixed preparations.

The fatty yolk arises directly by the transformation of Golgi bodies, and all stages have been clearly studied in the osmic preparations. In the young oocytes when the yolk-nucleus begins to spread out we find amongst the minute Golgi bodies some comparatively bigger bodies which go deep black in osmic acid and appear solid (Fig. 5, pl. 1). As the oocyte develops it is noticed that such bodies are present in large numbers scattered amongst the Golgi bodies (Fig. 6, 7, 8, pl. 1). These bodies are found in all

stages of development—some which are hardly bigger than the ordinary Golgi bodies, others which are relatively larger in size and other stages between these extremes. All these bodies are uniformly black and do not show any distinguishable osmiophilic rim or osmiophobic centre as do the Golgi bodies. But when the sections are treated with pure turpentine, free from all traces of acid, it is found that these bodies become vacuolar showing only a chromophilic rim or crescentic margin and a transparent core (Fig. 20, pl. 3). This shows that the fat sphere was not a mere fat globule, but a Golgi body which had deposited free fat in its chromophobic part; on the application of turpentine the free fat is dissolved out and the original Golgi ring or crescent is left behind. The unchanged Golgi bodies in the same slides remain absolutely unaffected even after prolonged treatment with turpentine.

The proteid yolk bodies have been found to be formed by the direct transformation of the mitochondria, which undergo rapid development. This can be studied with remarkable clearness in F. W. A. and other mitochondrial fixatives, which show all the stages in its transformation. Both the mitochondria and the mitochondrial yolk bodies stain similarly—red in acid fuchsin and deep blue in iron-alum-haematoxylin. Occasionally a developing mitochondrion becomes lodged in a vacuole and there continues its further development. The metamorphosis of mitochondria begins *pari passu* with their primary dispersal in the cytoplasm, but the process is first clearly seen when they assume a cortical concentration, as already pointed out. When the final uniform dispersal stage is reached the cytoplasm is seen to be literally choked with metamorphosed and metamorphosing mitochondria (Fig. 18, pl. 3). Confirmation of the direct formation of the proteid yolk bodies from mitochondria is obtained by the fact that only in later stages, after a definite chemical change has come

over the mitochondria, the latter are fixed in Bouin and Carnoy in the form of yolk bodies. If the developing yolk bodies were cytoplasmic in origin, chances were that they would be fixed in these fixatives containing acetic acid, from the very beginning. No direct relationship of proteid yolk bodies either with the Golgi bodies or with nucleolar extrusions has been observed.

8. *Centrifuge Experiments.*—In the study of oogenesis, centrifuge experiments are of the utmost value as they enable us to identify the cell organs in separate and distinct layers. The best results in the present case were obtained by fixing the centrifuged material in Kolatchev.

On an examination of the finished sections, both unstained and stained with acid fuchsin, it was found that there were three distinct and separate zones formed after centrifuging the mature oocytes (Fig. 26, pl. 4). The lower zone is a pale brownish area occupying about one-fifth of the whole oocyte. This contains the homogeneous cytoplasm in which lie some scattered refringent mitochondrial granules and filaments. The nucleus also lies in this zone. The major portion of the middle zone is occupied by proteid yolk bodies, entangled in which are a number of unchanged and half-changed mitochondria. This zone is very conspicuous and occupies the greater part of the oocyte. The upper pole is occupied by the lightest elements, namely, the Golgi bodies and the fatty yolk bodies. Individual Golgi bodies and mitochondria occur outside their respective zones, probably having escaped the centrifuge displacement.

The centrifuge experiments reveal the cytoplasmic inclusions in their true relations, and the evidence obtained thereby appears to corroborate the view that the Golgi bodies give rise to fatty yolk and the mitochondria to proteid yolk.

9. *Fresh Coverslip Preparations: The "Vacuome."*

(a) *Unstained Material.*—Absolutely fresh ovarioles were mounted in physiological salt solution and were studied under artificial light (1,000 candle power) without staining. The general structure of the ovarioles was nicely seen. This has already been described. The nuclei in all the cells were clearly visible and those of the nurse-cells showed the characteristic chromatic masses. The older oocytes were so choked—full of yolk that they were quite opaque. The slightly younger ones had also a large amount of yolk which could be seen as spherical bodies distributed uniformly in the cytoplasm. This distribution of the yolk bodies prevented the proper study of the Golgi bodies, although small rings and crescents could be observed. The differentiating oocytes in the lower portion of the germarium were relatively free from yolk, but these were so minute that their inclusions could not be properly identified.

(b) *Neutral Red Staining.*—Ovarioles were kept in a very dilute solution of this dye prepared as described under technique. These were studied after 10, 20 and 30 minutes. It was found that although the proximal portion of the tubule was nicely stained, the stain did not penetrate the oocytes because of the presence of a well developed thick follicle all round. When it was found that the oocytes did not stain even after half an hour they were punctured with a very fine sterilized needle under a binocular. As was expected this method proved eminently satisfactory. It facilitated penetration of the stain and the oocytes were nicely stained after 15 to 20 minutes.

Some of the young oocytes when examined carefully under an oil immersion lens were observed to contain a nucleus and a thick granular mass juxta-nuclear in position. The latter was identified as the "yolk nucleus of

Balbiani." It takes the same position in fixed preparations topographically. It was seen that this area contained a number of small refringent Golgi vesicles scattered irregularly. These did not take up any stain. In addition there were present three, four, or more patches of vacuoles which stained a cherry red colour and hence stood out quite prominently. Sometimes the individual granules or vacuoles in a patch become very closely clamped and present an appearance resembling a single bigger vacuole. These structures were identified as Parat's vacuome. The vacuome patches at this stage are situated in close association with the Golgi bodies, although they are quite distinct from the latter. In more advanced oocytes (Fig. 27, pl. 4) the Golgi elements appear scattered as discrete bodies in the form of vesicles as well as crescents. The patches of vacuome have also increased in number and lie scattered in the cytoplasm. They do not now show that close association with the Golgi bodies that is so characteristic of the young oocyte. The yolk bodies also have no relation with the vacuome, and are quite distinct from the latter. The morphological nature of the vacuome in the dispersed stage is the same as in the yolk nucleus stage.

(c) *Neutral Red and Osmic Acid*.—The Golgi bodies were better brought to view by the introduction of a little osmic acid under the coverslip while studying the material treated with neutral red. The contrast between the Golgi bodies and the vacuome also became clearer. The osmic acid, after a few minutes, affected the Golgi bodies which now came into view more prominently as highly refractile copper-coloured vesicles and crescents having the characteristic duplex structure both in the juxta-nuclear concentrated mass in the younger oocytes and also scattered in the cytoplasm in the older ones. The vacuome was not affected at all and remained

coloured brilliantly pink (Fig. 27, pl. 4). These two inclusions are therefore apparently quite different from one another. The close topographical association between the two which is seen in young oocytes is also severed as development proceeds. The vacuome, as a result of the application of the osmic acid, were not seen to fuse together or to be distorted in any way.

It must be mentioned here that although the use of osmic acid with material freshly stained in neutral red proved quite satisfactory for the study of Golgi bodies and vacuome side by side, the same method used for the demonstration of these two structures in fixed preparations (Beam's method) was not found to be quite satisfactory.

(d) *Janus Green B.*—The ovarioles were treated with this dye exactly in the same way as with neutral red. The mitochondria are stained greenish blue. Both granular and filamenter forms could be seen distributed uniformly in the cytoplasm in the older oocytes. The yolk bodies were never found to be coloured by this dye.

(e) *2 per cent Osmic Acid.*—Golgi bodies were identified in all stages of development of the oocytes by using 2 per cent osmic acid for varying lengths of time. The characteristic diploid structure of these elements, namely, a peripheral rim or crescent and a hollow interior was clearly brought out in these preparations. There are some bigger bodies also present which are the fatty yolk bodies. In older oocytes, in addition to the fatty yolk bodies, we find some other bigger bodies which do not get black but always appear whitish. These are proteid yolk bodies. Fig. 22, pl. 3, represents the contents of a fully mature oocyte, pressed under the coverslip. The two types of yolk bodies can easily be distinguished. A smear preparation exposed to osmic acid fumes for some-time also shows the two kinds of yolk bodies as well as Golgi elements. The advantage of smear method is that

the osmic acid is able to act in a shorter time than in wet mounts.

(f) *Sudan III and Scharlach R.*—These fat tests were tried both on fresh and formalin-fixed material. Fat bodies were stained red in both the reagents. These tests, of course, cannot afford any clue as to the origin of these fatty bodies.

DISCUSSION

1. *The Nurse and Follicle Cells.*—It has been known for a long time [Korschelt (90) and Hegner (71)] that the nurse-cells provide food material to the developing oocyte, and the idea of the passage of nutrient granules from them as well as from the follicle cells into the oocyte is not a new one. But the cytological basis of these phenomena has been investigated only recently. The fact that among the nutrient granules could be included cell organs like Golgi bodies and mitochondria we owe mainly to the works of Brambell, Bhattacharya and his pupils.

Weimann ('10), quoted by Wilson (149) appears to be the first observer to show clearly by the use of differential stains that in the beetle *Leptinotarsa* the nutritive cells of the end chamber of the ovary elaborate basophilic granules that flow downwards into the egg through the protoplasmic pedicle by which the latter are connected directly with the end chamber. Nussbaum-Hilarowicz ('17), also quoted by Wilson, working on the water beetle, *Dytiscus*, found the perinuclear zone of the oocyte connected directly with the nurse-cells by conspicuous protoplasmic bridges by which the mitochondrial contents of the nurse-cells pass inwards to the egg. In 1924, Brambell in the fowl and Bhattacharya in the tortoise first brought to light the interesting fact that the egg during the course of its development receives a sufficient quota of Golgi bodies from the

follicular epithelium. Since then Bhattacharya and his pupils have described this 'infiltration of Golgi bodies,' as they term it, in many groups of vertebrates. Among invertebrates, however, this phenomenon has so far been described only in the cockroach from this laboratory.

Further, so far as the insecta are concerned, the most thorough investigation of the phenomena associated with the nurse and follicle cells is that of Peacock and Gresson on sawflies, which has already been referred to. The work of Bhandari and Nath on the cotton bug and that of Nath on the mosquito has also been mentioned before.

In the butterfly under consideration, we have found that the nurse-cells are at first quite separate from the oocyte, but later become continuous with the latter by the breaking down of the intervening follicle cells and the membranes. Then the nurse-cells supply through this passage a valuable quota of both Golgi bodies and mitochondria to the developing oocyte. These migrating cell organs give rise to yolk bodies as do the similar elements of the egg itself. At a later stage even a stream of continuous cytoplasm of the nurse-cells flows into the oocyte and serves as food material. Thus the nourishment supplied by the nurse-cells is in the form of ground cytoplasm and active cell inclusions, viz., Golgi bodies and mitochondria.

It is noteworthy that both Peacock and Gresson in sawflies, and Bhandari and Nath in the cotton bug have described only Golgi bodies in the nurse-cells and their passage into the oocyte; they could not find any mitochondria in these cells. In the butterfly *Appias* there is no doubt about the presence of mitochondria in the nurse-cells or their inflow into the oocyte.

The irregular and branching nuclei of the nurse-cells in the insect under consideration deserve some notice. They are co-related with intensive metabolic activity of these cells. It may be, they profoundly influence the cyto-

plasm that flows into the oocyte; they have themselves never been found to be absorbed by the oocyte as recorded by the above mentioned workers. Such branching and labyrinthine nuclei have been described in a number of other cases. Cells possessing such nuclei are always characterised by great synthetic activities. For example, such nuclei occur in the silk glands of various insect larvæ and they have been described in a number of other insect ovaries, e.g., the earwig *Forficula* (Korschelt).

Both Peacock and Gresson in sawflies, Nath in *Culex* and Bhandari and Nath in cotton bug have described the ultimate absorption of the nurse-cells by the oocyte. We, however, find no such evidence in the butterfly *Appias* in the stages examined by us. We are inclined to believe that ultimately, after the passage of the Golgi bodies and the mitochondria and the inflow of the cytoplasm into the oocyte, the diminished and dwindled nurse-cells get separated from the oocyte and degenerate.

The authors have not been able to find any connecting tubes between the nurse-cells and the oocytes derived from the spindle remains of the final oogonial divisions as recorded by Dederer in *Philosamia*. In *Appias* the nurse-cells are at first quite separate from the oocyte and only at a later stage become continuous with the latter. Further, no accessory nuclei or nucleolar extrusions in the nurse-cells have been found as recorded by Peacock and Gresson in sawflies.

The follicle cells also take some part in the nutrition of the oocyte in *Appias*. Like the nurse-cells they supply a large number of Golgi bodies and mitochondria to the developing oocyte. The passage of Golgi bodies from the follicular epithelium to the egg seems to be a widely occurring phenomenon in vertebrates at least. The present investigation in conjunction with that on cockroach (*Ranade*) supports this view even in insects. This

passage of Golgi bodies is known to occur in two ways, namely, in lumps or in a granular form by a process of infiltration through channel-like passages in the zona radiata. In the animal under investigation, the Golgi granules simply pass down in a haphazard way.

The passage of mitochondria from the follicle cells into the oocyte seems to be either not a widely occurring phenomenon or it has hitherto escaped the notice of investigators. To the best of our knowledge it has been recorded only in two cases in vertebrates, namely, in the pigeon investigated by Das (39) and in the tortoises investigated by Bhattacharya and Lal (12). Nussbaum-Hilarowicz, who discovered the passage of mitochondria from nurse-cells into the oocyte did not notice a similar process in the follicular cells. As a matter of fact among invertebrates the process has not been recorded so far. In *Appias* it is very striking. The follicle cells have a large number of mitochondria which filter into the oocyte. Judging from the results in this insect, we believe, that the phenomenon is of wider occurrence.

2. *The Golgi Apparatus*.—The available evidence points to the conclusion that the Golgi apparatus is polymorphic in nature. In the germ-cells of both vertebrates and invertebrates, however, the apparatus generally occurs in the form of discrete elements either as granular, spherical or crescent-shaped structures. One of the authors has described in the tortoise egg various forms of Golgi bodies—rodlets, platelets, crescents, spherules, beaded strings, batonettes, irregular grains and dumb-bell shaped structures. Gatenby, Ludford and Brambell have also described in various animals both vesicular and dictyosomal Golgi bodies. Das has reported similar elements in birds. Nath and his collaborators have, however, found mostly vesicular Golgi bodies in a number of animals they have studied. They are disposed to regard all other forms

in the egg as artefacts. For example, Nath says that a crescent may be produced by the partial blackening of the chromophilic rim or may be that the appearance is due to an optical illusion. On the other hand, we have Harvey, who, as a result of his recent studies on the oogenesis of the earthworm, Antedon and Asterias (1931), believes that the true Golgi bodies are scale-like in their morphology.

It appears to us that the position taken up both by Nath and Harvey is controversial. In view of the work of Gatenby, Ludford, Hirschler, Bhattacharya, Brambell, Das and others, it is clear that the Golgi bodies in oogenesis also may be polymorphic in nature. This is supported by the present investigation. In Appias, we find that both vesicular and crescent-shaped Golgi bodies are present. The possibility of the latter being artefacts is ruled out by the fact that they are clearly visible in an intra-vitam examination and are nicely demonstrated in fresh coverslip preparations treated for a short time with 2 per cent osmic acid. The dictyosomes also carry a chromophobic core associated with them. Nath believes that the shape of the Golgi apparatus in oogenesis is bound up intricately with its function, namely, the deposition of free fat inside the vesicle. The dictyosomes in this respect are as good as the vesicular Golgi bodies for they have also been shown to develop fat in their chromophobic portion.

Harvey's contention that Nath is probably dealing with fat globules is absolutely unwarranted. He has taken this attitude mainly on the fact that in *Carcinus* and the Echinoderms studied by him he has found that fat arises *de novo* in the cytoplasm and that the Golgi elements are distinct scale-like structures. Moreover he and Weiner (152) have shown a similar occurrence in earthworm. Gatenby and Nath have produced evidence to show that Harvey was wrong and this has been corroborated by Sharga (140). The restatement of Harvey remains still

unconvincing. That they are vesicular Golgi bodies and not fat globules is proved by one fact alone that a mere fat globule never shows a chromophilic rim and a chromophobic centre as do the Golgi vesicles. Even a fat spherule developed from the latter shows this chromophilic rim on treatment with turpentine. Moreover, fat globules are not fixed in DaFano whereas the Golgi vesicles are. We have found no scale-like Golgi bodies in the butterfly but on this account do not disbelieve Harvey's findings in *Carnicus* and the Echinoderms; these objects must be very interesting indeed. The only conclusion reached is that Golgi apparatus is fundamentally polymorphic in nature even in oogenesis.

During the course of dispersal from a juxta-nuclear concentrated mass the Golgi bodies in the oocyte increased considerably in bulk and number. It has tacitly been assumed by practically every worker that this increase is brought about by fragmentation and growth. Not much evidence has, however, been brought in support of this. Gatenby in a recent paper (53) draws attention to this fact and points out that "in the preparations of young *Testudo* eggs made by Professor Bhattacharya in the writer's laboratory the growing Golgi bodies can be seen apparently dividing and producing chains of granules. They are depicted in his paper and afford strong evidence that the Golgi bodies in oogenesis increase by fission. In *Testudo* these peculiar chains of Golgi bodies are quite large and can be studied more satisfactorily than in any other material known to the writer." He has himself succeeded in inducing multiplication of Golgi bodies in moth spermatocytes by injecting phosphorised oil in the animal. In *Appias* we have occasionally found two or three Golgi bodies aligned in a chainlike formation suggesting that they have probably arisen by fragmentation.

About the function of Golgi bodies in oogenesis there is an overwhelming majority of workers, prominent among them being Gatenby, Ludford, Brambell, Nath and Bhattacharya, in favour of the view that these cell constituents directly or indirectly give rise to fatty yolk. Discordant results have, however, been recorded in some cases, e.g., Hibbard in *Discoglossus* and Harvey in *Carcinus*, *Lumbricus*, *Antedon* and *Asterias*. The latter finds that fat arises *de novo* in cytoplasm and that Golgi apparatus directly or indirectly gives rise to albuminous yolk. Our conclusions, however, on this point, are in harmony with the view of the majority. In all the insects hitherto studied by us no exception to this view has been found. Nath has in fact shown that the contents of the Golgi vesicles in a number of cases (*Luciola*, *Dusdereus* etc.) are fatty from the very beginning, and even when there is no formation of fatty yolk as in *Culex*, Golgi bodies, nevertheless, become slightly fatty. It has been shown in the present paper that the *Lepidoptera* also are similar in this respect to other orders of insecta. The Golgi rings and crescents, it has been observed, deposit free fat inside their chromophobic parts and are directly transformed into fatty yolk bodies.

Nath, as a result of investigations on a number of animals, maintains that the Golgi bodies have a nutritive function *par excellence* in oogenesis. If we were to consider *Appias* by itself the dictum could not be supported for in this animal we find that the Golgi bodies and mitochondria both play an equally important part in the nutrition of the oocyte. Both these cell organs are prominent throughout the course of oogenesis; both are reinforced by a passage of similar elements from the nurse and follicle cells; and both give rise to yolk, the one to fatty yolk and the other to proteid yolk. But taking all cases into consideration we find that it is the Golgi bodies

out of all the cell components that play the most important part in the nutrition of the oocyte in insects. In a number of cases it has been found that the follicle cells supply a good number of Golgi bodies only to the developing oocyte. They almost invariably give rise to fatty yolk and even in its absence the contents of the Golgi bodies become slightly fatty which must be utilised in the nutrition of the developing egg. The proteid yolk, on the other hand, arises from sources other than the Golgi bodies. These sources are different in different animals.

3. *Mitochondria*.—In the early yolk-nucleus and the perinuclear stages the mitochondria are situated in a densely staining mass of cytoplasm. hence their true nature at this time is very difficult to elucidate; they are mainly seen as granules. With the onset of dispersal, however, filamenter forms also come into view. How the latter arise we are unable to say. There are two possibilities: either they are present from the very beginning and cannot be distinguished in the dense cytoplasmic area, or they arise by the accumulation of the granular mitochondria. Mitochondrial granules aligned in chain-like formation have often been noticed.

About the origin and multiplication of the mitochondria conditions similar to those discussed in connection with the Golgi apparatus apply. In a number of cases mitochondria like the Golgi bodies, have been shown to be divided and transported almost equally to the blastomeres of the segmenting ovum, and are therefore apparently continuous from generation to generation. In Appias, we have not been able to find any mitochondria in the very early oocytes. It may be in the early stages they are so minute that they escape notice. The multiplication of the mitochondria also occurs presumably by fission.

About the function of mitochondria in oogenesis there is a good deal of variation in different animals. Harvey believes them to be concerned in yolk synthesis by using raw material in the cytoplasm, while the function of the Golgi apparatus, according to him, is the isolation of the material so synthesised out of solution. The latter view has found few supporters. In a number of cases mitochondria have been shown to be directly transformed into proteid yolk bodies (see discussion on yolk); while in others they apparently help the cytoplasm in some way to elaborate the yolk bodies. But so far as insects are concerned they have been in most cases shown to remain granular throughout oogenesis and apparently take no part in vitellogenesis. In the butterfly *Appias* it has been found that the mitochondria develop directly into proteid yolk bodies. Every stage in this transformation from the smallest mitochondrion to the fully developed yolk body is clearly seen, and there is absolutely no doubt that the mitochondria in this animal play as important a part in vitellogenesis as do the Golgi bodies.

4. *The Yolk-nucleus*.—As referred to before we have called by the name of "Yolk-nucleus of Balbiani" the juxta-nuclear area of cytoplasm in the early oocytes in which are concentrated both the Golgi bodies and the mitochondria. This area stands out sharply marked from the rest of the homogeneous cytoplasm in virtue of its capacity to take stain deeply. In most cases of oogenesis (both vertebrates and invertebrates) worked out in this laboratory a similar structure has been described. Brambell, however, in the fowl (28) recognised two separate areas of concentration for Golgi bodies and mitochondria. This has been contradicted by the more recent work of Das on pigeon (39). However, Brambell based his view mainly on the results obtained by the DaFano technique, which has a tendency to intro-

duce artefacts more than any other fixative. Others also who tacitly assume similar two areas of concentration have never clearly shown their separate existence in any osmic fixative. Two such separate areas, further, have not yet been demonstrated by intra-vitam examination. In view of all this it seems possible that there is only one area in the early stages of the oocytes which functions as the focus of growth and dispersal both for the Golgi bodies and the mitochondria. It may be regarded as the seat of intense cytoplasmic activity at a particular stage of development in the oocyte. And its juxta-nuclear position merits the belief that the nucleus may at this stage influence the development and dispersal of the cytoplasmic inclusions by means of enzyme action. Used in this sense the 'yolk-nucleus of Balbiani' is the homologous of the 'archoplasmic area' of Gatenby, and the 'idiosomic area' of Bowen.

But this is not the only sense in which this unhappy term has been used. The term 'yolk-nucleus' was first proposed by Carus (1850) to designate a cytoplasmic body first observed by Wittich (1845) in the oocytes of spiders and concerned in some way with yolk formation. Since then it has been used to describe structures the true homologies of which are questionable. For example, Hirschler has described a peculiar 'yolk-nucleus' in *Asidia* (76), which Parat and Bhattacharya (134) are disposed to regard as an artefact, and which Harvey (65) suggests is secreted by the Golgi bodies. Weiner (150, 151) similarly in *Tegeneria* and Lithobius holds that the 'yolk-nucleus' is secreted by the Golgi apparatus. More recently, Harvey (68) has described a 'yolk-nucleus' in *Antedon* which is probably nucleolar in origin.

Balbani ('93) was the first to urge the comparison between the idiosome and the so-called 'yolk-nucleus.' He maintained that the latter is equivalent to an 'attraction

sphere plus a centrosome. The same conclusion was reached by Van der Stricht ('98), D'Hollander ('04), Munson ('98, '04, '12), Lame ('07), Faure-Fremiet ('10), Loyez ('11), Van Durme ('14), and many other workers. This view, accepted by most of the French and Belgian workers, is now generally regarded as an established fact. In some cases the 'yolk-nucleus' has even been found to contain one or two central granules, closely similar to centrioles.

In view of the confusion that the indiscriminate use of the term 'yolk-nucleus' has caused in the literature on oogenesis and the various synonyms (*e.g.*, 'vitellin body,' "dotterkern," "corps vitellin," "archoplasmic area," "idiosome," etc.) that have been used from time to time it is urged that the term 'yolk-nucleus' be either dropped altogether and a new term proposed and accepted, or if the term is retained, its use should be restricted to the sense denoted above. In a number of cases (Nath, Bhattacharya and others) it has been found that fatty yolk formation begins at the yolk-nucleus stage. Hence we may regard this area as a centre of fat formation. This may, in a way, justify the use of the term 'yolk-nucleus.' Therefore till a better substitute is agreed upon, we may provisionally continue to use this nomenclature.

5. *Nucleolar Extrusions*.—The nucleolus had for a long time been regarded as a store-house for the waste products of the nucleus. Of late, however, cytologists have realised its importance as a nuclear constituent that plays a fundamental part in the interaction between the nucleus and the cytoplasm. The nucleolus has been shown to extrude fragments both in the somatic and the germ-cells. Ludford (96) has observed this even in tissue cultures. Prominent workers on oogenesis such as Gatenby, Hogben, Ludford, Nath and Bhattacharya have laid stress upon the phenomenon of nucleolar extrusions both in vertebrates and invertebrates, and have

in certain cases, as we shall see later, attributed the origin of albuminous yolk to these extrusions. Nucleolar extrusions are, however, by no means an invariable feature of oogenesis, and numerous cases are known in which the phenomenon does not occur.

The behaviour of the nucleolus and the nucleolar extrusions in oogenesis differs widely in different animals. A good summary is given in Gresson's paper on nucleolar phenomena in sawflies (59). Since then many more cases have been recorded. So far as insects are concerned nucleolar extrusions of one kind or other have been described in almost all cases. The occurrence of a similar phenomenon in the butterfly was, therefore, not unexpected.

In Appias, it has been observed that in the beginning there is a single basophilic nucleolus, which at no stage becomes oxyphil or even amphophil, and never presents a vacuolated appearance. It multiplies to form a number of daughter-nucleoli which are themselves basophilic, and these as such are extruded in the cytoplasm. The nucleolus, further, is active only for a short time and later disappears entirely. Among insects no case of such a simple behaviour of the nucleolus has been recorded. Bhandari and Nath (20) have described a similar behaviour in *Dysdercus*, so far as the staining reactions are concerned; but here also, contrary to what we find in Appias, the nucleolar extrusions last throughout oogenesis and also form directly the albuminous yolk-bodies. More often, however, although it is basophilic at its first appearance, the nucleolus has been described to undergo curious changes in its staining capacity, developing affinity for various acidic stains in varying degrees and often assuming a more or less vacuolated appearance, e.g., in *Luciola* (Nath, 115), certain *Tenthredinidæ* (Gresson, 59), and *Periplaneta* (Hogben, 82 and Nath, 116). The nucleolus in the butter-

fly is, therefore, remarkable for its simplicity of behaviour.

That the nucleolar fragments are extruded in the cytoplasm, there is no doubt, and the reasons for this belief have already been given. A question that merits some discussion is whether they are extruded as solid fragments or in the form of liquid drops. Irene Hilton in a recent paper on the oogenesis of *Calanus* (79) observes that it seems highly improbable that bodies of the size of the nucleolar extrusions could pass through the nuclear membrane without losing their identity or rupturing the membrane. She believes that the extrusions are of a liquid nature and the drops are merely fixation artefacts, their size depending upon the concentration of the extruded material in the region where they occur. Harvey (68) also leans towards this view. This is certainly a difficult point to decide.

Whatever be the truth in other cases, in *Appias* we believe that the nucleolar fragments are extruded in the cytoplasm in a solid condition. This is borne out by the fact that occasionally the nuclear wall has actually been seen to present an injured appearance. Moreover, the nucleoli within the nucleus and the extruded fragments are almost alike in size and shape thus making it almost impossible to believe that they could be coagulation artefacts. Nath comes to a similar conclusion in *Luciola* (115), and others also seem to hold a similar view. Occasionally, even the entire nucleolus has been shown to come out into cytoplasm, e.g., Henneguy in vertebrates, Nath in the scorpions, *Euscorpius* and *Butnus* (106), and Bhattacharya and Banerji in the crab *Scylla* (14).

The nucleolar fragments after being extruded undergo a change in their staining capacity which diminishes rapidly till the extrusions are entirely lost in the cytoplasm. There is nothing unusual in this behaviour as it

has been recorded quite often. The extrusions in the butterfly do not undergo any breaking up or growth in the cytoplasm, as for example, described by Nath in the *Scolopendra* and cockroach (114 and 116).

Among recent investigations we find a number of instances in which the nucleolar extrusions have been shown directly to give rise to albuminous yolk bodies. A perusal of the literature on yolk formation in insects shows that a similar conclusion has been reached in almost all cases, save in *Culex* (Nath, 110) and in the controversial case of cockroach as recorded by Ranade (15). We find no evidence to support the origin of albuminous yolk directly from the nucleolar extrusions in the insect investigated by us. This conclusion is based on the following reasons:—

(1) The nucleolar extrusions are never very profuse; they occur at an early stage of oogenesis and are not continued throughout the development of the oocyte. (2) They have never been observed to grow or bud in the cytoplasm; they never undergo even any dispersal, always remaining in the close vicinity of the nucleus. (3) They disappear either before or after the process of yolk formation has just commenced. (4) Albuminous yolk bodies have been found to be formed by the direct transformation of mitochondria.

Although the nucleolar extrusions do not certainly give rise directly to albuminous yolk in the butterfly, the possibility of their indirectly influencing the synthesis of this kind of yolk is not overlooked. It may be, by going into solution, they supply food material to the developing mitochondrion on its way to transformation into a proteid yolk body. In this connection it is suggestive that the commencement of yolk formation and the last stages of nucleolar extrusions often coincide. A similar possibility is visualised by Bhatta and Nath in the Crustacean *Palaemon* (21).

6. *The Yolk Bodies and their Formation.*—Deutoplasmic inclusions can broadly be divided into two types, namely, fatty bodies which blacken greatly in osmic acid and are readily soluble in turpentine and xylol and ordinary yolk bodies which are not affected by these reagents, and are presumably proteid-like in nature. This was first shown by Van Bambeke (1898) for the spider's egg. Faure-Farmanet (43) also described similar two types of yolk bodies in frog and carp. Gatenby and Nath (57) have subsequently shown that this is essentially true for all cases. There is hardly any conflict of opinion about this. It is only when we come to the origin of these bodies during the development of the oocyte that we find a good deal of controversy amongst cytologists.

The fatty yolk idea has taken a definite shape only recently ('22). The other workers indiscriminately described fatty bodies and fatty vacuoles as fatty yolk. The majority of workers are now agreed that fatty yolk arises directly or indirectly in relation to the Golgi bodies. Gatenby, Nath, Brambell, Ludford, Bhattacharya and several others uphold this view.

Hirschler (76) was the first to describe the origin of fatty yolk from the Golgi bodies. He showed in an Ascidian that the Golgi bodies become fatty and apply themselves to mitochondrial yolk bodies thus forming compound yolk. Gatenby and Woodger (56), Ludford (94), and Brambell (27) also showed that in the mollusca *Limnaea*, *Helix* and *Patella* the fatty yolk is formed from Golgi rings and crescents which become loaded with fat. Gatenby (48) found the same thing in *Saccocirus*. Nath and King (105, 85) working simultaneously on *Lithobius* came to a similar conclusion. The Golgi origin of fatty yolk had thus been known for sometime. Nath has subsequently vigorously supported and established this view. He has worked not only with the routine

laboratory techniques but also with fresh coverslip preparations treated with osmic acid. In many cases, (Spider, Scolopendra, cockroach, the medicinal leech, the crab *Palæmon* and the prawn *Paratathysia*) he has shown that free fat, not miscible with the general cytoplasm, is deposited in colloidal form in chromophobic core of the Golgi vesicles in the course of development of the oocyte. In others (*Luciola*, *Dysdercus*) the Golgi vesicles are fatty from the very beginning which quality is enhanced in the course of development so that they are then called fatty yolk spheres. In still other cases (*Pheretima* and *Culex*) where there is not much fat in the egg of Golgi bodies nevertheless become slightly fatty. More recently ('31) Nath has substantiated his claim in *Rana* and the teleost *Ophiocephalus*. In a number of investigations on oogenesis of all groups of vertebrates and some invertebrates (the mullusc-*Pila*, the crab-*Scylla*, the cockroach *Peripaneta* and the Indian earthworm, *Pheretima*) carried out in this laboratory identical conclusions have been reached. Further, Brambell (28) and Das (39) in birds, King (86) in *Oniscus*, Gresson [(60) and (61)] in certain sawflies and in *Periplaneta orientalis*, and Rai (137) in *Ostrea* have also supported the Golgi origin of fatty yolk. Recent work of Bell (6) has also shown that even in the male germ-cells neutral fats are developed from the lipoidal Golgi elements. In addition to the direct morphological evidence advocated by the above workers it is easy to understand the Golgi origin of fatty yolk in view of the lipoidal constitution of this cell component and the close chemical relation between lipoids and fats.

The results obtained in the present investigation are fully confirmatory to those recorded above. It has been found in the butterfly that fatty yolk is formed directly from the Golgi rings and crescents which deposit fat in their chromophobic parts. All the stages in this

transformation are clearly seen in osmic preparations as mentioned before. Further confirmation is obtained by treating the sections with turpentine when the free fat is dissolved out from these yolk bodies and only crescents and rings are left behind, showing that the fatty yolk spheres are not mere fat globules but transformed Golgi bodies. Fresh preparations also yield confirmatory results.

We come now to the proteid yolk. Here we find the utmost diversity of opinion amongst workers on oogenesis, and a study of the literature shows that the process differs even in closely allied species. Leaving aside the doubtful cases of Golgi bodies forming proteid yolk (Harvey, Steope, Weiner) it has been shown to arise from the mitochondria, nucleolar extrusions, the ground cytoplasm or in any combination of these. Moreover, recently Nath (117) has claimed that in *Ophiocephalus* the vacuome gives rise to albuminous yolk. Harvey, partly on theoretical and partly on practical grounds contradicts this "baffling diversity of results," as he calls it, and has put forward his own theory of yolk formation. His contention that yolk formation being a very primitive process must be fundamentally similar in all animals is not a right one. Yolk is ultimately derived from the food the animals take and in this respect even very closely allied species are known to differ. It is, therefore, natural to suppose that the chemical constitution of yolk would be different in different animals and consequently the cytological basis of this synthesis may also differ.

In the animal under consideration the albuminous yolk bodies have been found by the direct metamorphosis of the mitochondria. All the stages in this transformation are very clearly seen in the mitochondrial fixatives. Fresh coverslip preparations show the fatty and albuminous yolk bodies distinctly, the latter never go black in

osmic acid or get tinged with neutral red unless, of course, the cell is dead. Absolutely no connection between this yolk and the Golgi bodies has been noticed either in fixed or in fresh preparations. This is also borne out by the centrifuge experiments.

Of late evidence has accumulated that the nucleus often plays a very important part in vitellogenesis. An extrusion of nucleoli or nucleolar fragments has been noted by a number of observers and the origin of yolk from these extrusions has been advocated by some of the latest as well as earlier writers. Hogben's work on insects has already been mentioned. Gatenby (48) described a direct transformation of nucleolar extrusions into yolk in *Saccocirus*. Ludford (94, 95) working on *Patella* and *Limnaea* came to a similar conclusion. Nath in a number of invertebrates (*Lithobius*, *Euscorpius*, *Scolopendra*, *Luciola*, *Dysdercus*, etc.) has found a similar phenomenon. Bhattacharya has similarly laid stress on the possible connection of nucleolar extrusions to yolk formation.

We find no evidence of direct transformation of nucleolar extrusions into yolk bodies in the butterfly. But, as indicated before, there is a possibility of their influencing the synthesis of yolk. In this connection it may be pointed out that Nakahara (120) first suggested that the substance given off by the nucleolus is concerned in the metabolism of the cell. Following this, Mary Gardiner (58) in her work on the oogenesis of *Limulus* says: "Since deutoplasmogenesis is concerned with the building up of the phosphatide lecithin in a medium which is essentially protein in nature and rich in albumins, globulins and peptones, it is justifiable to assume that the function of the emissions is the transport of phosphorus in some form to the cytosome for use in the synthesis of yolk." This is certainly very suggestive.

Thus the conclusion arrived at in Appias is that the Golgi bodies give rise to fatty yolk and the mitochondria form the proteid yolk, deriving some constituent, probably from nucleolar extrusions.

7. *Intra-Vitam Examination*: "*The Vacuome*."—Of late it has been recognised that cytological study based entirely on fixed preparations should not always be relied upon. What was shown long ago to be true in the case of the study of the physical structure of protoplasm applies equally well to the study of its inclusions. It is therefore, that we find in modern papers a good deal of emphasis laid on the study of fresh material. Vital staining has, in fact, played a very prominent part in recent years in the study of cytoplasmic inclusions, specially in gametogenesis.

The results of the study of fresh material in the present investigation so far as the morphology and the development of the Golgi bodies, mitochondria and the yolk bodies are concerned, have been absolutely confirmatory to those obtained by a study of fixed material. It has been found that neutral red does not stain Golgi bodies; nevertheless, it slightly improves their visibility. A similar conclusion has been reached by Bhattacharya and Nath. The true morphological nature of the Golgi bodies has been found to be vesicular or crescent-shaped with chromophilic and chromophobic portions. No scale-like Golgi bodies as recently described by Harvey in the earthworm and Echinoderms have been seen in the intra-vitam studies. That Golgi bodies do get transformed to form fatty yolk bodies can easily be observed in every stage. The proteid yolk bodies have been found to bear no relation with the Golgi bodies.

Both granular and filamenter mitochondria can be observed by staining the ovarioles with Janus green B. The possibility of the filaments being artefacts in fixed preparations is, therefore, eliminated.

It is only the intra-vitam staining with neutral red that brings the vacuome into view. And since the results obtained in the present investigation appear to be very satisfactory, it is worth while discussing the whole question in some detail.

There are at present two principal conceptions of the true nature of Golgi apparatus held by cytologists. According to the first the Golgi apparatus is an important cell organ independent of any vacuolar or canalicular structures described by others, and that it consists of a specific substance presumably lipoid in nature (Nassonov, Bowen, Gatenby). The other school believes that the classical Golgi apparatus is a myth and an artefact created by fixatives, and that the true structure consists of a system of vacuoles, collectively known as vacuome, which is specifically stainable with neutral red in an intra-vitam examination. According to the latter view, the vacuome and the classical Golgi apparatus are one and the same thing. The former view is at present held by the majority of cytologists.

The word "Vacuome" was first used by the plant cytologist Dangeard to describe the neutral-red-staining vacuoles in plant cells. Guilliermond and Mangelot (1921) first elaborated the vacuome hypothesis specially for the plant cells. Parat and Painleve (1924) in the course of three short papers on the salivary glands of the chironomus larva set forth the vacuome hypothesis for animal cells, agreeing with Guilliermond in that "Vacuome et chondriome sont deux elements morphologiques fondamentaux mais independents de toute cellule animale comme vegetale." They maintained that the netlike form of the Golgi apparatus is an artefact and represents precipitated silver or osmium in or around a number of vacuoles specifically stainable with neutral red intra-vitally. In his later papers Parat has somewhat modified his original con-

ception. So far as the germ-cells are concerned he now speaks of a so-called " Zone of Golgi " comprised of the vacuome with which are associated some specialised mitochondria which he calls " Lepidosomes " (Gatenby's dictyosomes or Golgi crescents). Thus Parat maintains that what others regard as Golgi apparatus, he still believes to be the vacuome. A study of gland cells (1925, 1928) has further strengthened Parat in this conception of the vacuome, and he thinks that the vacuoles appear to coalesce and to extend around and among the zymogen granules simulating a network and forming " Croissants " which he likens to the " Mailles " of the network described by Nassonov. He believes further that in the individual vacuoles comprising the vacuome " granules de secretion " are produced by condensation. What the vacuome does in types of cells other than secretory Parat does not elucidate.

Parat's vacuome theory (not the lepidosome theory) has received support from some quarters. Covell (1923) in a study of pancreatic secretion in the mouse after injection with neutral red accepts Parat's views insasmuch as he regards the neutral red granules as the Golgi apparatus; but he does not find any connection between the vacuome and the formation of zymogen granules. Covell and Scott (1928), further, in an experimental study of nerve cells have found that osmic acid fumes and also silver nitrate preserve bodies vitally stained with neutral red and blacken them just as they do the Golgi apparatus. After 75 hours they noticed an increase in size and number of vacuoles and a tendency towards alignment. Cowdry and Scott (1929) in *Plasmodium precox* observed that the vacuome after treatment with osmic acid aligned and fused to form a typical apparatus of Golgi. Indirect support to Parat has been given by Walker (1927) who maintains that Golgi apparatus as seen in fixed preparations is an artefact as similar figures could be produced on

droplets in white of egg or protein and fat mixtures smeared on slides and fixed according to current Golgi techniques. Benseley (1910) first advanced a vacuolar hypothesis of the Golgi apparatus, and in a recent paper (1929) he maintains that the modern vacuome theory is the same thing as his older hypothesis. This is, however, not true for he holds to the canicular type of apparatus while Parat and Painleve demonstrate that the vacuomes consist for the most part of isolated vacuoles.

Criticism of Parat's Lepidosome theory and in part the vacuome theory has come from Avel, Gatenby, Bowen, Hirschler, Monne, Voinov, Ludford, Krjukowa, Bhattacharya, Beams and Nath. The Lepidosome theory may now safely be regarded as an exploded hypothesis but the above mentioned authors are themselves divided in their views about the true nature of vacuome. All of them, however, are agreed that it is not homologous with the classical Golgi apparatus.

The present work on the female germ-cells of the butterfly confirms the opinion held by Bhattacharya and Nath. It has been shown in the present investigation that in the fresh eggs it is possible to study both the vacuome and the Golgi bodies side by side in material stained with neutral red. The two categories of structures are found to be distinct—the vacuome stains with neutral red specifically and the Golgi bodies are not tinged at all. If a drop of osmic acid is introduced under the coverslip the Golgi bodies become clearer and their chromophilic rim or crescent is characteristically darkened. The vacuome, on the other hand, remains absolutely unaffected as red staining patches of granules or vacuoles.

Bhattacharya and Das, Beams and Nath maintain that the vacuome and Golgi apparatus are independent cytoplasmic constituents and the occasional association of the two is fortuitous. Bhattacharya

and Das in the pigeon (1929) have shown that these two cytoplasmic inclusions are entirely distinct and separate throughout the course of oogenesis and that the one has nothing to do with the other. The vacuome stains with neutral red specifically, the Golgi bodies do not. A similar conclusion has been reached by P. R. Bhattacharya and Dutta (1931) working on the fresh eggs of the fish *Clarias batrachus* and by D. R. Bhattacharya and Banerji in the crab, *Scylla*; and by Ranade in the cockroach. Beams has in somatic cells (gland and nerve cells 1930 and 1931) come to a similar conclusion. He believes he has succeeded in seeing the vacuome even in fixed preparations by his neutral red osmic technique. Nath has only very recently (1931) demonstrated the vacuome and Golgi apparatus as independent morphological cell constituents in fresh eggs of frog and fish. Harvey (1931) has also seen the Golgi apparatus and vacuome as distinct structures in *Antedon* and *Asterias*, but he leans towards the belief that the vacuome is probably secondary in nature.

It has already been mentioned that the vacuome and the Golgi bodies have been followed in all stages of development of the butterfly egg side by side as distinct structures. It is true that the vacuome patches occur associated with Golgi bodies in the yolk-nucleus area, but it is true also of the mitochondria. The yolk-nucleus is an area in which in the early stages of the oocytes all the cytoplasmic organs seem to be concentrated in a juxta-nuclear mass. It functions as a centre for growth and dispersal for all cell inclusions. Hence the close association between Golgi bodies and vacuome that is apparent at this young stage does not warrant us to believe that the latter is a product of the Golgi apparatus.

Little is known about the function of the vacuome in animal cells. A good deal of work has been done on secretion where the vacuome figures largely, but a discussion on

that is beyond the scope of the present paper. So far as oogenesis is concerned Hibbard and Parat in *Discoglossus* and certain Teleostean fishes, and Marguerite Parat in *Paracentrotus* have shown that albuminous yolk arises by a condensation of vacuome, which is the Golgi apparatus according to them. Nath, as mentioned before, has advocated a similar behaviour of the vacuome in *Ophiocephalus*; and he believes that the egg vacuome is strictly comparable with the plant vacuome in the interior of which also protein material in the form of aleurone grains is deposited. Neither Harvey in his study on Echinoderm oogenesis, nor Das in birds finds any evidence in favour of this view. It is an important problem that merits further investigation. If the true vacuome can really give rise to albuminous yolk, Brambell's classification of yolk will have to be extended by the incorporation of a fifth kind of cell constituent responsible for yolk formation. So far as we are concerned, the material under investigation gives no evidence whatsoever towards the formation of albuminous yolk either directly or indirectly from the vacuome.

SUMMARY

1. The Golgi elements are revealed best in Ludford and Kolatchev techniques. The silver methods afford comparatively poor fixation specially of the younger oocytes, and the inclusions cannot, therefore, be properly studied.
2. Neutral red does not stain the Golgi elements, yet their visibility is improved by the application of this dye to the fresh material.
3. In the ovarioles treated with 2% osmic acid Golgi bodies can be followed in all stages of development in the oocyte.
4. In all stages of development Golgi bodies are present in the form of vesicles and crescents. The spherical Golgi body may be differentiated into a chromophilic rim and a chromophobic centre, while dictyosome appears as an osmiophilic crescent attached to an archoplasmic area.

5. In the youngest oocyte the Golgi bodies occur in juxta-nuclear concentrated area of cytoplasm which has been called the 'yolk-nucleus of Balbiani' area.

6. From the yolk-nucleus area, the Golgi bodies gradually spread out in the cytoplasm till a universal dispersal is established.

7. The Golgi bodies of the oocyte receive a valuable quota of similar elements from the nurse and follicle cells.

8. During their growth and dispersal from the yolk-nucleus stage onwards, the Golgi elements swell up to form fatty yolk bodies by depositing free fat in the chromophobic area.

9. Fatty yolk bodies appear as solid black bodies in osmic preparations (both fixed and fresh) and are dissolved when treated with turpentine leaving clear vacuoles with an osmiophilic rim or crescent. In DaFano and Bouin preparations they appear as vacuoles. With Sudan III and Scharlach R they stain red.

10. The mitochondria are revealed best by F.W.A., Champy-Kull, Regaud-Tupa, Zenker-Helly and Kolatchev techniques.

11. They stain selectively with Janus green B in fresh mounts.

12. They are present both in the granular and filamenter form.

13. In the youngest oocyte they occur in the yolk-nucleus area. Then they spread out to form a perinuclear ring. From this stage the mitochondria begin to spread out in the cytoplasm. Later a peripheral arrangement is seen, and once again a uniform dispersal.

14. The 'yolk-nucleus of Balbiani' is discussed and regarded as a focus of growth and dispersal both for the Golgi bodies and the mitochondria.

15. *Pari passu* with the growth and development of the oocyte, the mitochondria begin to develop into proteid yolk bodies. When the peripheral arrangement is established this process is clearly marked.

16. The mitochondrial constituents of the oocytes are also reinforced by a passage of similar elements from the nurse and follicle cells.

17. The nucleolar phenomena are seen best in Bouin slides.

18. The single nucleolus in the young oocytes is basophil. It multiplies to form a number of smaller daughter-nucleoli. These are extruded into the cytoplasm where they disappear. Nucleolar multiplications and extrusions do not last throughout oogenesis but only for a short time.

19. Nucelolar extrusions do not directly give rise to albuminous yolk bodies; but the possibility of their indirectly influencing its synthesis is indicated.

20. The nurse-cells in addition to providing their quota of Golgi bodies and mitochondria, also supply a stream of cytoplasm to the developing oocyte. The nurse-cells or their nuclei have never been noticed to pass entire into the oocyte.

21. Infiltration of Golgi bodies and mitochondria from the follicle cells to the egg has been described and discussed.

22. In intra-vitam examination with neutral red, patches of 'vacuome' have been identified, which occur either as individual vacuoles or as a number of vacuoles in clumps. Vacuomes have been seen in all categories of cells in the ovarian filaments.

23. In the young oocytes the vacuome patches are few in number, and occur in the yolk-nucleus area, distinct, though in close association with Golgi bodies. In grown up oocytes patches of vacuome are present, distributed in the cytoplasm. They are absolutely distinct and separate from Golgi bodies.

24. No connection between vacuome, Golgi bodies, and yolk bodies has been observed.

EXPLANATION OF PLATES

(All the figures have been drawn with the help of Camera lucida with different magnifications, which are given with each figure).

PLATE I

Fig. 1. Kolatchev, unstained. Longitudinal section of the proximal part of the ovarian tubule. The undifferentiated bunch of cells and the early differentiated oocytes, nurse-cells and the follicle cells are seen. The disposition of the Golgi bodies in these cells at this stage is shown. X. 650.

- Fig. 2. Ludford, unstained. Young oocyte showing Golgi bodies in the yolk-nucleus stage. X. 290.
- Fig. 3. Ludford, unstained. Slightly older oocyte showing the growth of the yolk nucleus. X. 290.
- Fig. 4. Ludford, unstained. Oocyte showing the concentration of the Golgi bodies on two sides of the nucleus. X. 290. It is a rare feature.
- Fig. 5. Ludford, unstained. Oocyte showing the spreading out of Golgi bodies from the yolk-nucleus area. Fatty yolk formation. X. 290.
- Fig. 6. Ludford, stained with neutral-red-acetic. Further stage in the dispersal of Golgi bodies. Fatty yolk formation quite well marked. X. 290.
- Fig. 7. Ludford, stained with neutral-red-acetic. Well-developed oocyte showing almost complete dispersal of Golgi bodies and every stage in fatty yolk formation. The Golgi bodies in the nurse-cells are also seen.
- Fig. 8. Ludford, stained with neutral-red-acetic. Oocyte showing Golgi bodies distributed uniformly in the cytoplasm. Passage of Golgi bodies from the nurse-cells into the oocyte is also shown. X. 290.

PLATE 2.

(All figures of this plate are from F.W.A. preparations stained with iron-alum-haematoxylin).

- Fig. 9. Young oocyte showing mitochondria in the yolk-nucleus stage. X. 650.
- Fig. 10. Oocyte showing the growth of the yolk-nucleus area. X. 650.
- Fig. 11. Oocyte showing a further stage in the expansion of the yolk-nucleus. X. 650.
- Fig. 12. Oocyte showing the perinuclear concentration of mitochondria. X. 650.
- Fig. 13. Oocyte showing the onset of dispersal of mitochondria. X. 650.
- Fig. 14. Oocyte showing dispersed mitochondria and the commencement of mitochondrial yolk formation. X. 650.

- Fig. 15. A portion of the oocyte showing the infiltration of Golgi bodies from the follicular epithelium, and two kinds of yolk bodies in the peripheral region of the egg. X. 650.

PLATE 3.

- Fig. 16. Ludford, unstained. Showing infiltration of Golgi bodies from the follicular epithelium, and two kinds of bodies in the peripheral region of the egg. X. 650.
- Fig. 17. Bouin, iron-alum-haematoxylin. Mature oocyte showing proteid yolk bodies and fatty yolk vacuoles. X. 290.
- Fig. 18. Regaud, iron-alum-haematoxylin. Showing mitochondrial yolk formation in the peripheral region of the egg. X. 290.
- Fig. 19. Bouin, Mann's methyl-blue-eosin. Oocytes showing nucleolar multiplication and nuclear extrusions. X. 290.
- Fig. 20. Kolatchev, treated with turpentine. Showing fatty yolk vacuoles, proteid yolk bodies, Golgi bodies and mitochondria. X. 290.
- Fig. 21. Bouin, iron-alum-haematoxylin. Showing the activity of the follicle cells. X. 290.
- Fig. 22. Osmic acid for 30 minutes. Ruptured contents of mature oocyte showing the two types of yolk bodies and Golgi bodies. X. 650.
- Fig. 23. Bouin, iron-alum-haematoxylin. Oocyte showing the inflow of nurse-cell cytoplasm. X. 290.
- Fig. 24. Carnoy, iron-alum-haematoxylin. Oocyte showing nucleolar extrusions. X. 290.

PLATE 4.

- Fig. 25. Zenker-Helly, iron-alum-haematoxylin. Oocyte showing the inflow of nurse-cell cytoplasm, and the cortical concentration of the mitochondria.
- Fig. 26. Kolatchev, stained with acid fuchsin. Centrifuge oocyte showing three zones. X. 290.
- Fig. 27. Neutral red for 30 minutes. Dispersal stage of vacuome and Golgi bodies. X. 650.

LETTERING

Alb. y. b.	..	.. Albuminous yolk body.
F.C.	..	.. Follicle cell.
F.y.b.	..	.. Fatty yolk body.
F.y.v.	..	.. Fatty yolk vacuoles.
G.S.	..	.. Golgi body.
Inf. c.	..	.. Inflowing nurse-cell cytoplasm.
Inf. Gb.	..	.. Inflowing or infiltrating Golgi body.
Inf. M.	..	.. Inflowing or infiltrating mitochondria.
M.	..	.. Mitochondria.
N.	..	.. Nucleus.
N.C.	..	.. Nurse-cell.
N.C.N.	..	.. Nurse-cell nucleus.
Nu.	..	.. Nucleolus.
Nu. F.	..	.. Nucleolar fragments.
Nu. Ex.	..	.. Nucleolar extrusions.
Pu. M. R.	..	.. Peri-nuclear mitochondrial ring.
Und. C.	..	.. Undifferentiated bunch of cells.
V.	..	.. Vacuome.
Y.N.	..	.. Yolk-nucleus.

BIBLIOGRAPHY

1. Avel, M. 1925 .. Vacuome et appareil de Golgi chez les
vertebrates. C. R. Acad. Sci. T. 180.
2. Beams, H. W., 1930a .. Studies in the vacuome and the Golgi
apparatus in the aciner cells of the
pancreas of the rat. Anat. Rec.
Vol. 45.
3. Beams, H. W., 1930b .. Golgi apparatus, canalicular apparatus
vacuome and mitochondria in the
islets of Langerhans of the albino rat.
Anat. Rec. Vol. 46.
4. Beams, H. W., 1931 .. A cytological study of the spinal
ganglion cells of the rat. Anat. Rec.
Vol. 40.
5. Beams, H. W. and Goldsmith, J. B., 1931. Golgi bodies, vacuome, and mitochon-
dria in the salivary glands of the
chironomous larva. Jour. Morph. and
Phisol., Vol. 48.
6. Bell, A. W., 1929 .. The origin of neutral fats from the Golgi
apparatus of the spermatid of the
Dog. Jour. Morph. and Physiol., Vol.
48.
7. Bhattacharya, D. R., 1925 Les inclusions cytoplasmiques dans
l'oogenese de certain reptiles. Thèse
Sciences de Paris.
8. Bhattacharya, D. R., 1927 The Golgi apparatus and the Vacuome
Theory. Allid. Univ. Studies, Vol. 3.
9. Bhattacharya, D. R., 1932 Cytological studies in granular secre-
tion. Presidential address, Nineteenth
Indian Science Congress (Zoology
section).
10. Bhattacharya, D. R. and Das, R. S., 1929. Golgi body and Vacuome. Nature,
Nov. 2.
11. Bhattacharya, D. R., Das, R. S. and Dutta, S. K., On the infiltration of Golgi bodies from
the follicular epithelium to the egg.
1929. Zeit. Zellf. Mikr. Anat., Bd. 8.

12. Bhattacharya, D. R. and Lal, K. B., 1929. The cytoplasmic inclusions in the oogenesis of certain Indian tortoises. Alld. Univ. Studies, Vol. 6.
13. Bhattacharya, D. R. and Mathur, C. B., 1929. Cytoplasmic inclusions in the oogenesis of Pila., Alld. Univ. Studies, Vol. 6.
14. Bhattacharya, D. R. and Banerji, S. P., 1932. On the cytoplasmic inclusions in the oogenesis of *Scylla serrata*. Alld. Univ. Studies, Vol. VIII, Part II. 1932.
15. Bhattacharya, P. R., 1929*a*. The infiltration of Golgi bodies from the follicular epithelium to the egg in fishes. Alld. Univ. Studies, Vol. 6.
16. Bhattacharya, P. R., 1929*b*. Notes on the cell organs in the oogenesis of the house Geko. Alld. Univ. Studies, Vol. 6.
17. Bhattacharya, P. R., 1931. The infiltration of Golgi bodies from the follicular epithelium to the egg in mammals. Alld. Univ. Studies, Vol. 6.
18. Bhattacharya, P. R. and Dutta, S. K., 1931. Vital staining experiments on *Clarias batrachus*. Alld. Univ. Studies, Vol. 7.
19. Bhandari, K. C. and Nath, V., 1930. Studies on the origin of yolk. 1. The oogenesis of the red cotton bug, *Dydercus cingulatus*. Zeit. Zellf., Bd. 10.
20. Bhatia, D. R. and Nath, V., 1931. Studies on the origin of yolk. 6. The crustacean oogenesis. Q. J., Vol. 7.
21. Bowen, R. H., 1923 .. On the nature of Mitochondria. Anat. Rec.
22. Bowen, R. H., 1926 .. Golgi apparatus, its structure and functional significance. Anat. Rec. Vol. 32.
23. Bowen, R. H., 1927 .. Studies on the structure of Plant protoplasm. 1. The osmophilic plateless. Zeit. Zellf. Bd. 6.
24. Bowen, R. H., 1927 .. Golgi apparatus and vacuome. Anat. Rec., Vol. 35.
25. Bowen, R. H., 1928 .. Methods for demonstration of the Golgi apparatus 1—6. Anat. Rec., Vol. 36.

26. Brambell, F. W. R., 1924 The nature and origin of yolk. Br. Jour. Expt. Biol., Vol. 1.
27. Brambell, F. W. R., 1925a The oogenesis of Fowl. Phil. Trans. Royal. Soc., London.
28. Brambell, F. W. R., 1925b Part played by the Golgi apparatus in secretion in the oviducal gland of the Fowl. J. R. M. S.
29. Balbiani, E. G., 1893 .. Centrosome et Dotterkern J. A. P. 29. (Quoted by Wilson).
30. Buillard, H., 1924 .. Les mitochondres dans l'oogenesex D'Emys lutaria. C. R. Assoc., Anat. (Quoted by Bhattacharya).
31. Champy, C. and Carleton, H. M., 1921. Observations on the shape of the nucleus and its determination. Q. J., Vol. 65.
32. Covell, W. R., 1928 .. A microscopic study of secretion in the living pancreas. Anat. Rec., Vol. 40.
33. Covell, W. R. and Scott, G. H., 1928. An experimental study of the relation between granules stainable with neutral red and the Golgi apparatus in nerve cells. Anat. Rec., Vol. 38.
34. Cowdry, E. V., 1924 .. General Cytology.
35. Cowdry, E. V., 1924 .. Special cytology.
36. Chlopin, N. C., 1927 .. Experimentalle Untersuchungen uber die sekretorischen Prozesse in Zytoplasm. 1. Ueber die Reaktion der Oewebeselemente auf intravitale Neutralrothfarbung. Arch. f. exper. Zellfor., Bd. 4.
37. Das, R. S., 1928 .. A preliminary account of the cytoplasmic inclusions in the oogenesis of Columba livia. Alld. Univ. Studies, Vol. 4.
38. Das, R. S., 1930 .. Cytoplasmic inclusions in the oogenesis of Birds.
39. Dederer, P. H., 1915 .. Oogenesis in Philosamia cynthia. Jour. Morph., Vol. 26.

40. D'Hollander, F. G., 1904 Recherches sur l'oogenese et sur la signification du noyau vittelin de Balbiani chez les oiseaux. Arch. l'Anat. Micr. T. 7. (Quoted by Wilson).
41. Dutta, S. K. and Asana, J. J., 1929. Golgi apparatus in the oogenesis of *Calotes versicolor*. Alld. Univ. Studies, Vol. 4.
42. Faure-Fremiet, E. et De Streel, 1921. Composition chimique de l'oeuf et du tetrad de *R. temporaria*. C. R. (Quoted by Wilson).
43. Gatenby, J. B., 1917 .. Cytoplasmic inclusions of germ-cells 1. Lepidoptera. Q. J., Vol. 52.
44. Gatenby, J. B., 1918 .. *Ibid.* 5. Limnae. Q. J., Vol. 163.
45. Gatenby, J. B., 1920a .. *Ibid.* 6. Apanteles. Q. J., Vol. 64.
46. Gatenby, J. B., 1920b .. The modern technique of cytology. Q. J., Vol. 64.
47. Gatenby, J. B., 1922 .. The gametogenesis of *Saccocirrus*. Q. J., Vol. 66.
48. Gatenby, J. B., 1928 .. Nature and function of Golgi bodies. Nature, March 24.
49. Gatenby, J. B., 1929 .. Study of Golgi apparatus and vacuolar system of *cavia*, *Helix*, and *Abraxas* by intra vital methods. P. R. S. B., Vol. 104.
50. Gatenby, J. B., 1930 .. Cell Nomenclature, J. R. M. S., Vol. 50.
51. Gatenby, J. B., 1930 .. Golgi apparatus, mitochondria, and the vacuome theory of Dr. Parat.
52. Gatenby, J. B., 1931a .. Induced multiplication and growth of Golgi bodies and alteration of nebenkern patterns in *Abraxas grossulariata* spermatogenesis, Jour. Exptl. Zoo., Vol. 56.
53. Gatenby, J. B., 1931b .. Note on Dr. Jan Hirschler's paper on Spindle-bridges and the de novo origin of moth spermatocyte Golgi bodies, Biol. Bull., Vol. 60.

54. Gatenby, J. B., 1931c .. The prozymogen granules of R. R. Bensley and the modern neutral red cytology, Amer. Jour. Anat., Vol. 48.
55. Gatenby, J. B. and Woodger, J. B., 1920 .. On the relationship between the formation of yolk and the mitochondria and the Golgi apparatus during oogenesis, J. R. M. S.
56. Gatenby, J. B. and Nath, V., 1926 .. The oogenesis of certain Invertebrates with special reference to Lumbricus, Q. J., Vol. 70.
57. Gardiner, M. S., 1927 .. Oogenesis in *Limulus polyphemus* with special reference to the behaviour of the nucleus. Jour. Morph., Vol. 6.
58. Gresson, R. A. R., 1929a Nucleolar-phenomena during oogenesis in certain Tenthredinidae. Q. J., Vol. 73.
59. Gresson, R. A. R., 1929b Yolk formation in certain Tenthredinidae. Q. J., Vol. 73.
60. Gresson, R. A. R., 1931 Yolk formation in *Periplaneta orientalis*. Q. J., Vol. 74.
61. Guilliermond, A. and Mangenot, 1922. Sur la signification de l'appareil reticulaire de Golgi, C. R. Acad. Sc. T. 174.
62. Guilliermond, A., 1919.. The recent development of our idea of vacuome of plant cells. Amer. Jour. Nat., Vol. 16.
63. Harvey, L. A. 1925 .. Relation of mitochondria and Golgi bodies to yolk formation in Earthworm. Q. J., Vol. 67.
64. Harvey, L. A., 1927 .. The history of the Cytoplasmic inclusions of the egg of *Ciona intestinalis*. P. R. S. B., Vol. 101.
65. Harvey, L. A., 1929 .. The oogenesis of *Carcinus moenus*, Penn, with special reference to yolk formation. Trans. Roy. Soc. Edinburgh, Vol. 56.
66. Harvey, L. A., 1931a .. Oogenesis of *Lumbricus*: a re-statement. Q. J., Vol. 74,

67. Harvey, L. A., 1931*b* .. Studies on Echinoderm oogenesis 1. *Antedon bifida*. P. R. S., Vol. 107.
68. Harvey, L. A., 1931*c* .. *Ibid.* 2. *Asteris rubens*. P. R. S. B., Vol. 107.
69. Megner, R. W., 1915 .. Studies on germ-cells. 1. Hymenoptera Jour. Morph., Vol. 76 .
70. Megner, R. W., 1914 .. The germ-cell cycle in animals. Macmillan & Co.
71. Hibbard, H., 1932 .. Cytoplasmic inclusions in the egg of *Echiarachnius parma*. Jour. Morph., Vol. 45.
72. Hibbard, H., 1928 .. Cytoplasmic constituents in the developing egg of *Discoglossus Pictus*. Jour. Morph., Vol. 36.
73. Hibbard, H., 1930 .. Comments on cell nomenclature according to Gatenby. Anat. Rec., Vol. 47.
74. Hibbard, H. and Parat, M. Oogenesis in certain Teleosts. J. Anat. 61.
75. Hirschler, Jan. 1913 .. Ueber die Plasmastrukturen in den Geschlechtszellen der Ascariden. Arch. f. Zellf. (9). (Quoted by Wilson).
76. Hirschler, Jan. 1918 .. Ueber die Plasmakomponenten der Weiblichen Geschlechtszellen. Arch. Mikr. Anat. 89. (Quoted by Wilson).
77. Hirschler, Jan. 1929*a* .. Sur la relation entre le noyau et les composants plasmatiques (Appareil de Golgi Vacuome) dans les spermatoocytes des Lepidopteres. C. R. Soc. Biol. T. 101. (Quoted by Gatenby).
78. Hilton, I. F., 1931 .. Oogenesis of *Calanus finmarchicus*. Q. J. 74.
79. Hill & Gatenby. 1927 .. The oogenesis of *Daphnia* by intra and post vitam staining Nature.
80. Hogben, L., 1920*a* .. Studies on Synapsis. 1. Oogenesis in Hymenoptera. P. R. S. B., Vol. 91.
81. Hogben, L., 1920*b* .. *Ibid.* 2. *Periplaneta*, P. R. S. B., Vol. 91.
82. Hogben, L., 1921 .. *Ibid.* 3. *Libellula*. P. R. S. B., Vol. 92.

83. Jones, E. R., 1931 .. The intra-nuclear deutoplasm and the origin of gametes in the Turbellarian *Prorhyncus applanatus*. Jour. Morph. and Physiol., Vol. 52.
84. King, S. D., 1924 .. Oogenesis of *Lithobius forficatus*. Sc. Proc. R. Dublin. Soc.
85. King, S. D., 1926a .. Oogenesis of *asselus*. P. R. S. B., Vol. 100.
86. King, S. D., 1926b .. Notes on the oogenesis of *Peripatus*. Q. J., Vol. 70.
87. Koehring, V., 1929 .. The neutral red reaction Jour. Morph. and Physiol., Vol. 49.
88. Krjukowa, Z., 1929 .. Observations cytologiques sur la glandes salivaires de la larve du chironome. A. R. Anat. Hist. Embryol. T. 9. (Quoted by Beams).
89. Korschelt, E., 1886 .. Über die Entstehung und Bedeutung der Verschiedenen Elementen des Insekta novarimus E. W. Z. (Quoted by Wilson).
90. Lewis & Lewis, 1915 .. Mitochondria and other cytoplasmic constituents in tissue cultures. Amer. Jour. Anat., Vol. 17.
91. Lame and Doorme, 1908 .. Nouvelles recherches sur la maturation et la foundation. Arch. Biol. 23. (Quoted by Wilson).
92. Loyez, M., 1909 .. Les premiers stades de la vittelogenese chez quelques Tuniciers. C. R. Assoc. Anat. (Quoted by Wilson).
93. Ludford, R. J., 1921a .. Contributions to the study of the oogenesis of *Patella*. J. R. M. S.
94. Ludford, R. J., 1921b .. Behaviour of the nucleolus during oogenesis with special references to *Patella*. J. R. M. S.
95. Ludford, R. J., 1925 .. Nuclear activity in tissue culture. P. R. S.
96. Ludford, R. J., 1926 .. Further modification of the osmic acid methods in cytological technique. J. R. M. S.

97. Ludford, R. J., 1926 .. Vital staining of normal and malignant cells. 1, P. R. S.
98. Ludford, R. J., 1930 .. *Ibid.* 2, P. R. S.
99. Ludford, R. J., 1931 .. *Ibid.* 4, P. R. S.
100. Ma, W. C., 1930 .. Further identification of neutral red stained material. Chinese Jour., Physiol. 4.
101. Munsen, J. P., 1912 .. A comparative study of structure and origin of yolk nuclei Arch. Zellf. Bd. 8.
102. Mukerji, R. N., 1930 .. The 'nuclear reaction' in *Apanteles*. P. R. S.
103. Nath, V., 1924a .. The egg follicle of *Culex*. Q. J., Vol. 69.
104. Nath, V., 1924b .. Oögenesis of *Lithobius forficatus*. Proc. Camb. Phil. Soc.
105. Nath, V., 1925 .. Cell inclusions in the oögenesis of scorpions. P. R. S.
106. Nath, V., 1926a .. On the present position of Golgi bodies and mitochondria. Biol. Rev. Cambr.
107. Nath, V., 1926b .. Golgi origin of fat in the light of Parat's work. Nature.
108. Nath, V., 1928 .. Studies on the origin of yolk in *Crosso-priza*. Q. J., Vol. 72.
109. Nath, V., 1929 .. Studies in the shape of Golgi apparatus 1. Egg follicle of *Culex*. Zeit. Zellf.
110. Nath, V., 1930a .. *Ibid.* 2. *Pheretima*. Q. J., Vol. 72.
111. Nath, V., 1930b .. Vacuome and Golgi apparatus. Nature.
112. Nath, V., 1931 .. A demonstration of the vacuome and the Golgi apparatus as independent cytoplasmic constituents in the fresh eggs of *Frog*. Zeit. Zellf.
113. Nath, V. and Hussain, T., 1928. Studies in the yolk. 2. *Scolopendra*. Q. J., Vol. 73.
114. Nath, V. and Mehta, D. R., 1929. *Ibid.* 3. *Luciola gorhami*. Q. J. 73.
115. Nath, V. and Mohan, P., 1929. *Ibid.* 4. *Periplaneta americana* Jour. Morph., Vol. 48.

116. Nath, V. and Nangia, M. D. A demonstration of the vacuome and the Golgi apparatus as independent cytoplasmic constituents in the fresh eggs of Teleostean fishes. Jour. Morph. & Physiol. 52.
117. Narain, D., 1930a .. Cytoplasmic inclusions in the oogenesis of Rana, Bufo, and Rhacophorus. Alld. Univ. Studies, Vol. 6.
118. Narain, D., 1930b .. Cytoplasmic inclusions in the oogenesis of Ophiocephalus punctatus. Zeit. Zellf. Bd. 2.
119. Nakahara, W., 1917 .. On the physiology of the nucleoli as seen in the silk-glands of certain insects. Jour. Morph., Vol. 29.
120. Nussbaum-Hilarowicz. 1917. Ueber das Verhalten des chondriomes wahrend der Eibildung bei Dytiscus. Zeit. f. Wiss. Zool. CXII. (Quoted by Wilson).
121. O'Brien & Gatenby, 1930 Oogenesis of Lumbricus. Nature.
122. Owens & Benley, 1929.. Osmic acid as microchemical re-agent with special reference to Golgi apparatus. Amer. Jour. Anat., Vol. 44.
123. Paillot & Noel, 1926 .. Sur la eigne de inclusions albuminoides du corps adipeux insectes Compt. Rend. Acad. Sci. 182.
124. Patten, Scott & Gatenby, 1928. Cytoplasmic inclusions of certain plant cells. Q. J., Vol. 72.
125. Peacock & Gresson, 1927 The role of nurse-cells, oocytes and follicle cells in Tenthredenid oogenesis. Q. J., Vol. 71.
126. Pollister, A. W., 1930 .. Cytoplasmic phenomena in the spermatogenesis of Gerria. Jour. Morph. & Phis. 40.
127. Parat, M. et Painleve, J., 1924a. Constitution du cytoplasme d'une Cellule glandulaire; la cellule des glandes salivaires du larva du chironome. C. R. Acad. Sci. T. 179.

128. Parat, M. et Painleve, J.. Observation vitale d'une cellule glandularren activiti. Nature et role de l'appareil reticulaire interne de Golgi et de l'appareil de Holmgren. 1924b. *Ibid.*
129. Parat, M. et Painleve, J.. Appareil reticulaire interne de Golgi. 1924c. trophosponge de Holmgren et Vacuome. *Ibid.*
130. Parat, M., 1925 .. Vacuome et appareil de Golgi. C. R. Assoc. Anat.
131. Parat, M., 1926 .. Sur la constitution de l'appareil de Golgi et de l'idiozome: Trais et faux dictyosomes. C. R. Acad. Sci. 182.
132. Parat, M., 1928 .. Contribution a l'etude morphologique et phsiologique du cytoplasme. Arch. Anat. Micr. 24.
133. Parat & et Bhattacharya. Les constituants cytoplasmique de la 1926. cellule genetale female de l'oocyte Ciona intestinalis. C. R. Soc. Biol. T. XCIV.
134. Parat, Marguerite, 1928 La vacuome au como de l'oogenese et du developpment de l'ovisin Paracentrotus lividus. C. R. Soc. Biol. 96. (Quoted by Harvey).
135. Rau, A. S., Gatenby and Observations on Golgi bodies in living Brambell, 1925. cells. P. R. S.
136. Rai, H. S., 1930 .. On the origin of yolk in the egg of Ostrea cuculata. J. R. M. S., Vol. L.
137. Ranade, V. D., 1932 .. Cytoplasmic inclusions in the oogenesis of Periplaneta americana. Univ. Studies. Alld., 1933.
138. Sato, K., 1929 .. On the real nature of vital staining. Folio. Anat. Japonica Bd. 8.
139. Steope, 1926 .. L'Appareil de Golgi dans la vitellogenese chez la Nefe Cincrea. C. R. Soc. Biol. 94. (Quoted by Harvey).
140. Shurga, U. S., 1928 .. Cytoplasmic inclusions in the oogenesis of Pheritima. Alld. Univ. Studies, Vol. 4.

141. Strangeways, T. S. P. and Canti, R. C., 1927. The living cell in vitro. Q. J., Vol. 171.
142. Stuhlmann, P. .. Die Reifung des Arthropodeneies.
(Quoted by Gatenby).
143. Van der Stricht, 1898 .. Contribution a l'etude du noyau vitellin
de Balbiani. Verh. Anat. Gess. XII.
(Quoted by Gatenby).
144. Van der Stricht, 1904 .. La couche vitellogene et les mitochondries
de l'oeuf mammiferes. *Ibid.*
145. Van Durme, 1914 .. Arch. de Biol., Vol. 29. (Quoted by
Brambell).
146. Wallin, 1927 .. Symbiontism and the origin of species.
147. Walker, C. E., 1927 .. Nature of Golgi bodies in fixed
material. P. R. S. B., Vol. 101.
148. Wilson, E. B., 1928 .. The cell in development and heredity.
149. Wiemann, H. L., 1910 .. A study of the germ-cells of *Leptinotarsa*. Jour. Morph. XXI. (Quoted
by Wilson).
150. Weiner, P., 1925a .. Arch. Russ. Anat. Hist. Embrol. 4.
(Quoted by Harvey).
151. Weiner, P., 1925b .. Ztschr. Mikr. Anat. Forsch. 4. (Quoted
by Harvey).
152. Weiner, P., 1930 .. *Ibid.* Bd. 20. (Quoted by Harvey).

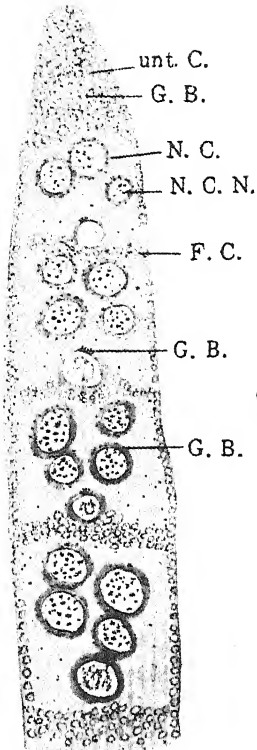


Fig. 1
Kolatchev

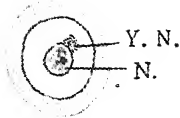


Fig. 2
Ludford

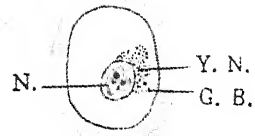


Fig. 3
Ludford

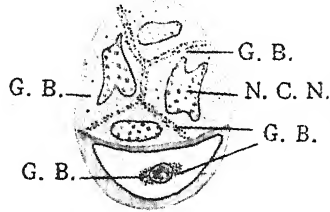


Fig. 4
Ludford

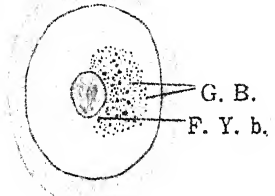


Fig. 5
Ludford

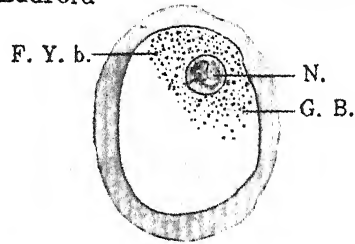


Fig. 6
Ludford

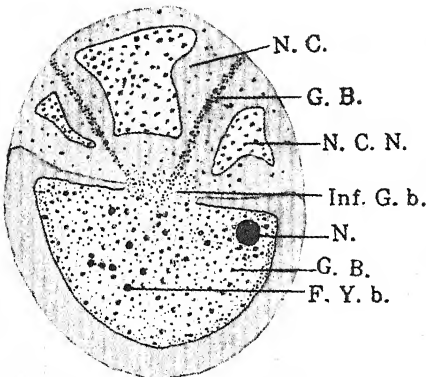


Fig. 8
Ludford

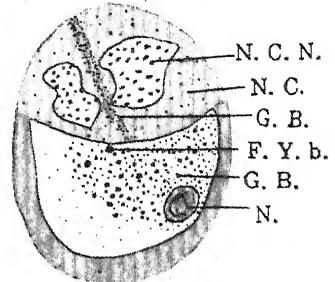


Fig. 7
Ludford

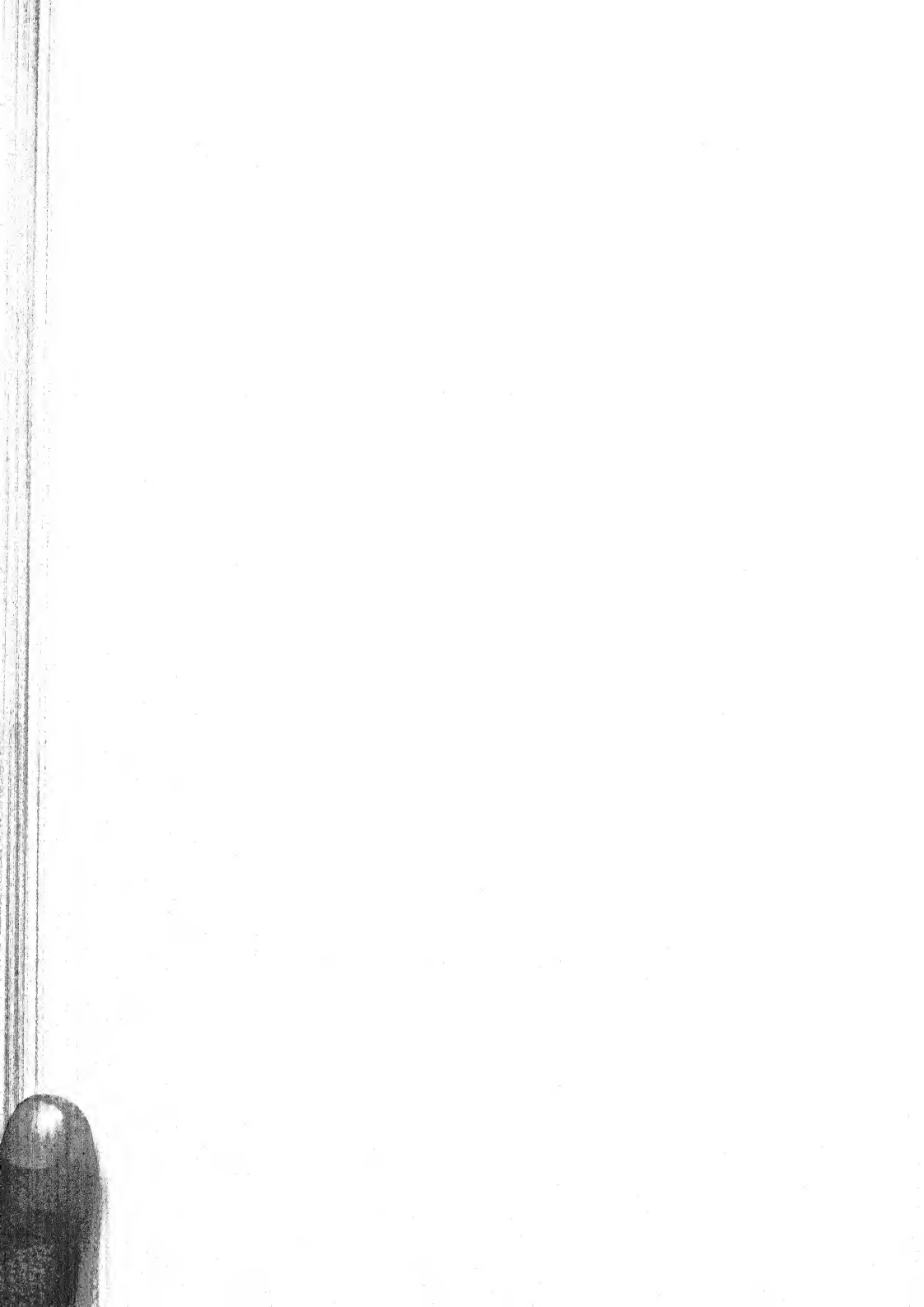


PLATE 2.

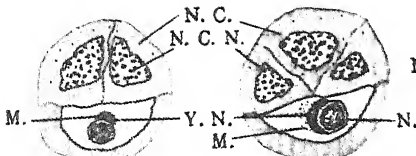


Fig. 9
F. W. A.

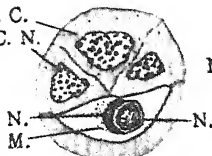


Fig. 10
F. W. A.



Fig. 11
F. W. A.

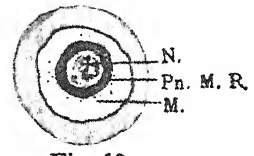


Fig. 12
F. W. A.

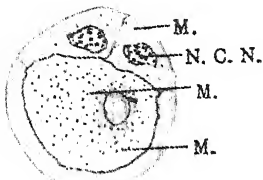


Fig. 13
F. W. A.

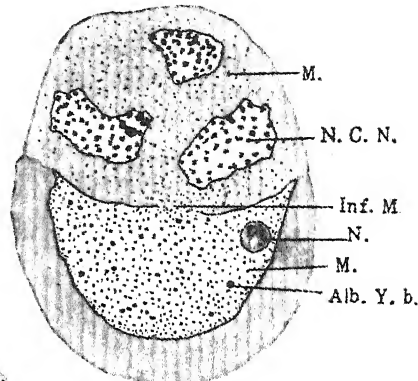


Fig. 14
F. W. A.

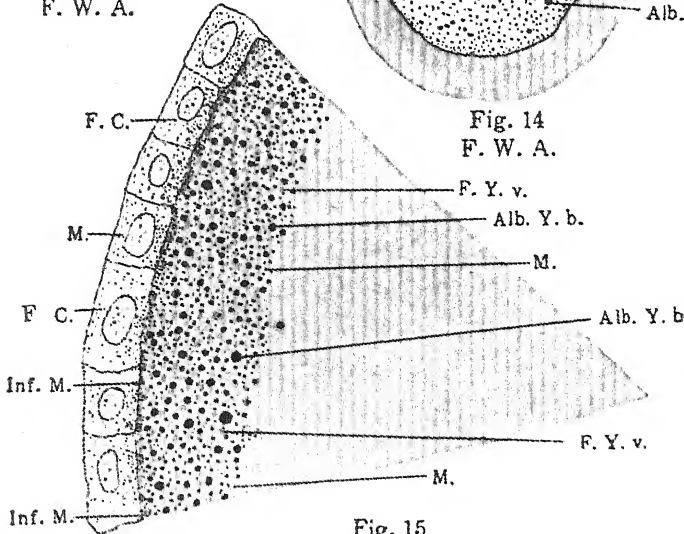


Fig. 15
I. W. A.

PLATE 3.

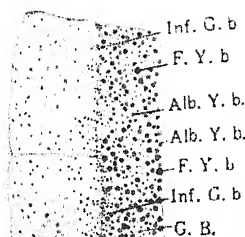


Fig. 16
Ludford

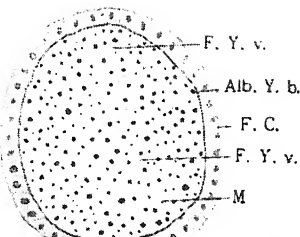


Fig. 17
Bouin

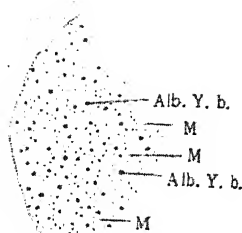
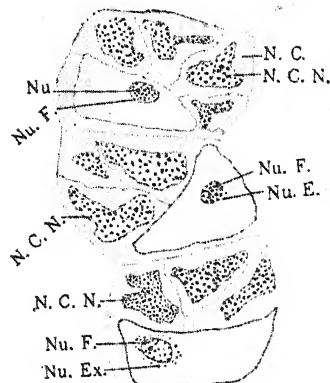
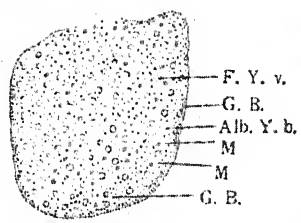


Fig. 18
Regaud.



Bouin Fig. 19



Kolatchev, Fig. 20

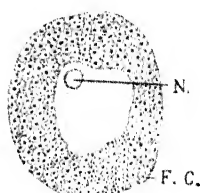


Fig. 21
Bouin

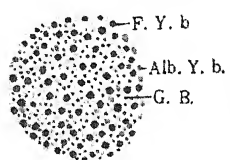


Fig. 22
2% Osmic acid

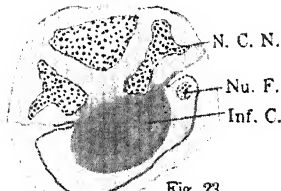


Fig. 23
Bouin



Fig. 24
Carnoy.

PLATE 4.

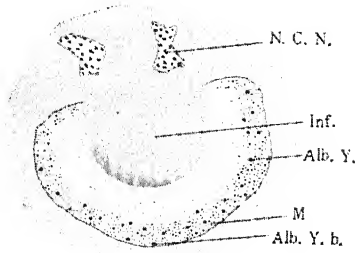


Fig. 25
Zenker-Helly.

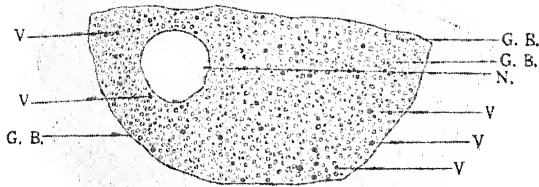


Fig. 27
Neutral-red Osmic acid.

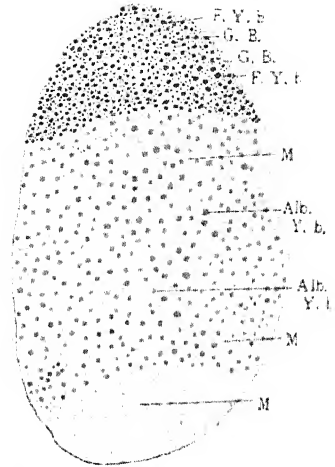
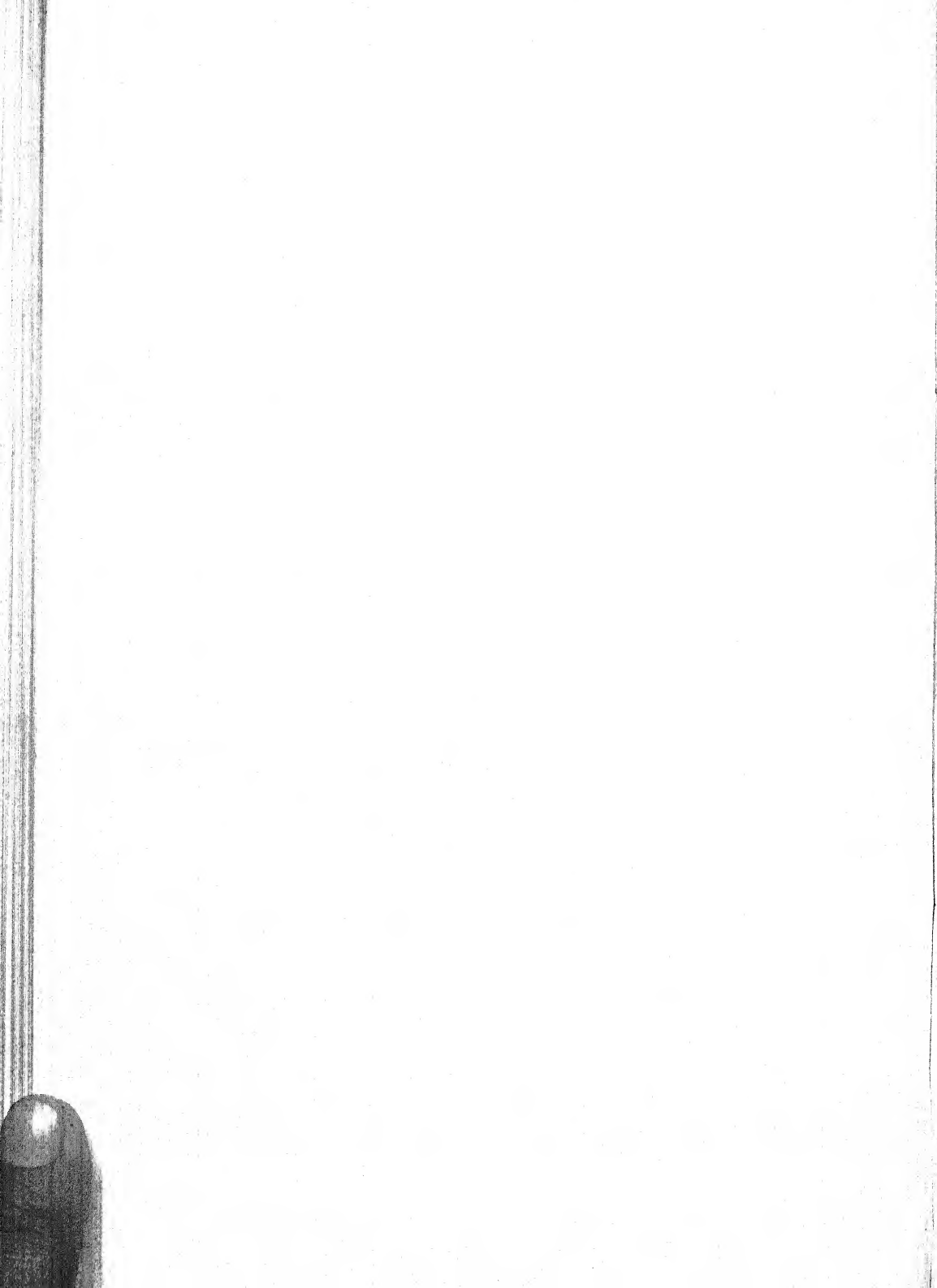
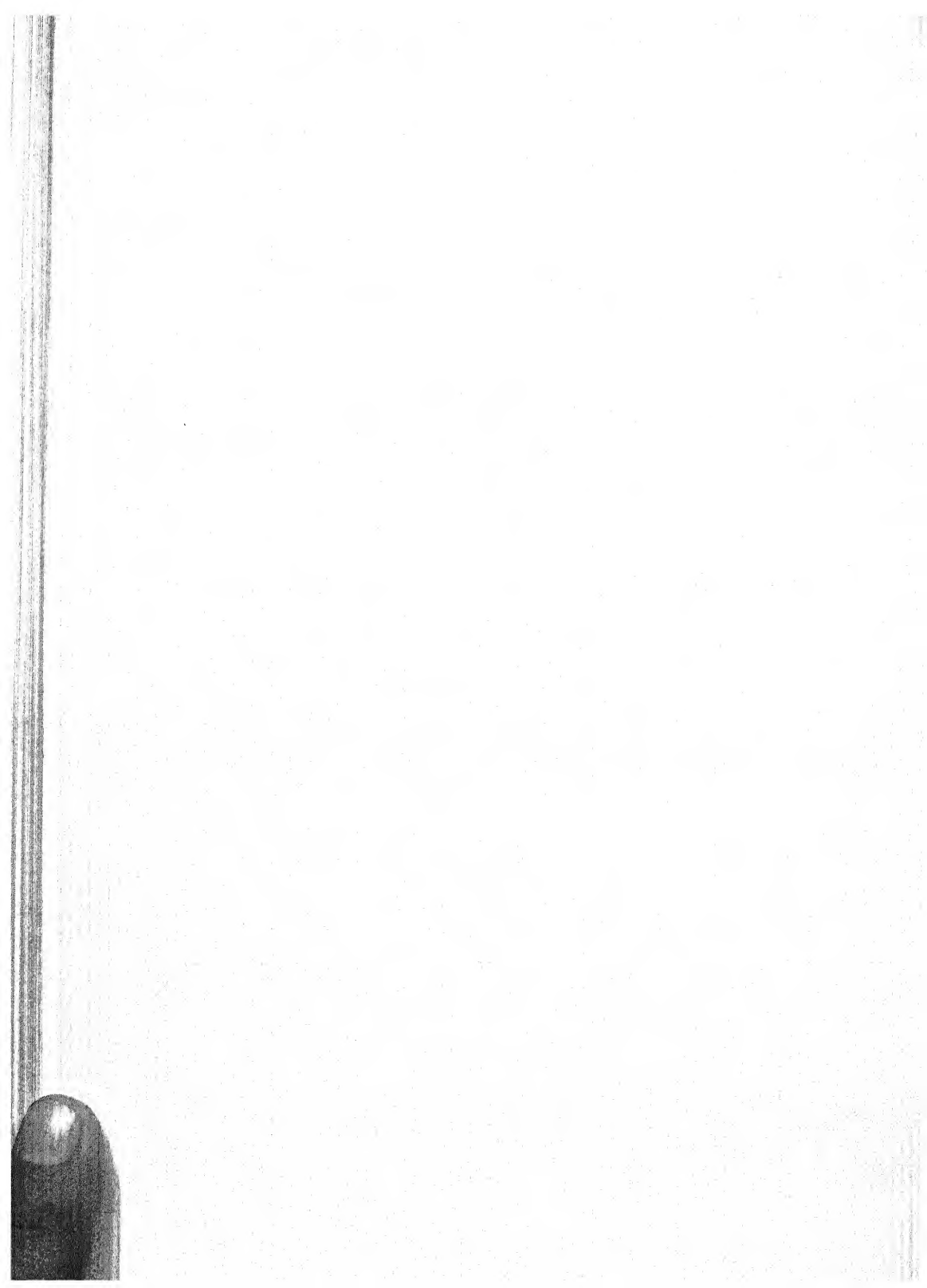


Fig. 26
Kolatchev.



SECTION II
CHEMISTRY



BEHAVIOUR OF SILICIC, VANADIC, TUNGSTIC, MOLYBDIC, TELLURIC AND ANTIMONIC ACIDS AS COLLOIDAL ELECTROLYTES

BY

PROF. N. R. DHAR AND DR. S. GHOSH

A great deal of attention has been paid to the investigation of the colloidal behaviour of soaps, silicates, dye-stuffs, alkaline and acidic proteins from the view-point of colloidal electrolytes. There are several characteristics, which justify our inclusion of silicic, vanadic, tungstic, molybdic, telluric and antimonie acids also in the category of colloidal electrolytes. Some of these acids conduct electricity fairly well and all of them behave as colloids. We have investigated various properties of these substances for several years and from the following pages it will be seen that these substances behave as typical colloidal electrolytes.

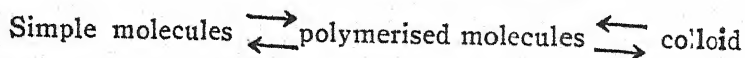
In several publications [J. Phys. Chem., **33**, 1905 (1929); J. Ind. Chem. Soc., **6**, 17 (1929); **9**, 441 (1932); Z. Anorg. Chem., **184**, 135 (1929); **190**, 421 (1930)] from these laboratories it has been shown that although these sols are negatively charged and can readily absorb OH^- ions from potassium or sodium hydroxide, they are rendered unstable in the presence of small quantities of NaOH or KOH . These results are, therefore, not in agreement with the observation that H^+ ions appreciably stabilise a positively charged sol like $\text{Fe}(\text{OH})_3$, $\text{Cr}(\text{OH})_3$, $\text{Al}(\text{OH})_3$, etc. In the following table our results on the coagulation of silicic, vanadic, tungstic, molybdic, and

telluric acids both in the absence and presence of an alkali are summarised :—

TABLE I

Sols of acids.	Ppt. value of KCl (moles) in the absence of an alkali.	Amt. of an alkali added in moles.	Ppt. value of KCl in the presence of an alkali.
Silicic .. ..	.. ..	0.0271	0.900
Vanadic ..	0.0129	0.0133 NH_4OH	0.0064
Tungstic ..	0.0354	0.0097 KOH	0.0125
Molybdic ..	0.3300	0.0160 NH_4OH	0.1800
Telluric ..	0.2800	0.0833 NaOH	0.0800

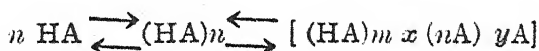
On the other hand, these negatively charged sols have been found to be appreciably stabilised in the presence of small quantities of an acid. We have been able to explain this behaviour of the sols from the fact that a large percentage of these acid substances remains in solution as simple and polymerised molecules and the following equilibrium is likely to exist in these substances :—



Now if an alkali is added to silicic acid sol it reacts with the simple molecules first and in order to restore the equilibrium more of the simple molecules will be formed at the expense of the polymerised molecules. The polymerised molecules of the acid give out complex negative ions, which are adsorbed more readily by the colloid particles than the simple negative ion. We have shown that the amount of adsorption by a surface is greater with a complex and a heavy ion than with a simple one. On the other hand, the presence of H^+ ions from an acid increases the polymerisation so that more of the negative ions are adsorbed by the colloid particles. Thus the sol becomes stable in the presence of an acid and unstable in the presence of an alkali. Some years ago Schulz and Jander [*Z. Anorg. Chem.*, **162**, 141 (1927)] have shown

that the complexity of the tungstate ion increases in the presence of H° ions and decreases in presence of OH' ions. Similar results have also been obtained by us with vanadic acid sol.

We are of opinion that the sols of silicic, vanadic, tungstic, molybdic, telluric, and antimonie acids are composed of certain percentage of the substances in true molecular condition containing both simple and polymerised molecules, and when the polymerisation is very high the colloidal particles are formed. Thus the following equilibrium seems to be established in an acid HA belonging to this group:—



The electric charge on the colloid particles is due to the adsorption of x polymerised anions each carrying n units of electric charge, and y simple anions containing one unit of electric charge. The adsorption of the complex anions is more important than that of the simple anions because of the large amount of electric charge carried by the complex anions. The electric conductivity and colloidal behaviour of each of these substances will now be considered.

Silicic acid sol.—In 1897 Mylius and Groschuff [Ber. 39, 116 (1906)] came to the conclusion that at the moment of formation of silicic acid by the action of acids on water-glass, it exists in the molecular condition, which passes unchanged through a parchment dialyser. Colloidal particles then result from polymerisation of the simple silicic acid molecules on keeping the solution and this is shown by the increase of molecular weight for many weeks. Several workers have concluded that this ageing process leads to the formation of highly polymerised colloid particles and finally to crystalline silica. We have also come to the same

conclusion from our observation that silicic acid sol develops a marked increase in the viscosity with time.

We have also investigated the change in the electrical conductivity of a dialysed sol of silicic acid (prepared by the hydrolysis of silicon tetrachloride) with time and the following results have been obtained :—

TABLE II

Temperature 30°C.

Concentration of the sol, Date.	6.17 grms. of SiO_2 per litre. Specific conductivity.
4-4-1927	5.75×10^{-5}
2-5-1927	6.10×10^{-5}

It is interesting to find that silicic acid sol which contains molecules of silicic acid in the dissolved state shows an increase in the electrical conductivity in spite of the fact that the molecules aggregate to form colloidal particles with time. We have attributed this behaviour to the fact that silicic acid itself is a weak acid with very little electrical conductivity and that it gives out some adsorbed electrolyte on ageing. We have noted that several sols like those of $\text{Fe}(\text{OH})_3$, $\text{Cr}(\text{OH})_3$, $\text{Al}(\text{OH})_3$, etc., give out appreciable amounts of the adsorbed electrolyte on ageing. The depression of the electrical conductivity due to the polymerisation of the simple molecules is more than counterbalanced by the liberation of the adsorbed electrolyte with time.

Tungstic acid sol.—This sol as obtained by the method of Graham by adding an acid to sodium tungstate solution rapidly passes through a parchment paper and it is well known that this optically pure sol contains a large percentage of the acid in the molecular state. We, however, prepared tungstic acid sol by first precipitating the substance by an excess of hydrochloric acid from a sodium tungstate at 8°C and the product NaCl and removing the excess of HCl by washing the precipitate, which

gradually passed into a sol. The sol was further purified by dialysis, when some tungstic acid appeared in the dialysate. The pure sol free from chloride ions was found still to contain appreciable amounts of tungstic acid, which did not coagulate by electrolytes like KCl, KNO_3 , etc. The electrical conductivity of the sol was sufficiently high and it was distinctly acidic (hydrogen ion concentration = 10^{-3}). The influence of ageing on the electrical conductivity was also determined and the following results were obtained :—

TABLE III

Date.	Sp. Conductivity
22-10-1927	4.12×10^{-3}
31-10-1927	3.883×10^{-3}
2-11-1927	3.769×10^{-3}
4-11-1927	3.728×10^{-3}
18-11-1927	3.632×10^{-3}

The equivalent conductivity of tungstic acid was determined by Sobolew [Z. Anorg. Chem., 12, 16 (1896)] and the following are his results :—

TABLE IV

Temperature—25°

$\text{H}_2 \text{W}_4 \text{O}_{13}$						
$\nu =$	32	64	128	256	512	1024
$\lambda =$	176.4	233.5	279.1	325.1	371.6	416.7

These results prove that an appreciable amount of tungstic acid remains in the dissolved condition as simple and polymerised molecules, which dissociate into hydrogen ions and a negative ion of high electrical conductivity. A decrease in the specific conductivity on ageing is obviously due to the formation of more of polymerised molecules and the colloidal aggregates with time.

Molybdic acid sol.—Rosenheim and Bertheim [Zeit. Anorg. Chem., **34**, 427 (1903)] reported that the dihydrate of molybdenum trioxide has a definite solubility and the acid diffuses through a parchment paper and possesses the molecular weight of 600. We have carefully studied this sol obtained by the interaction of hydrochloric acid and ammonium molybdate. As the sol is allowed to dialyse a large percentage of molybdic acid passes through the parchment paper. With time the portion of the acid existing as simple molecules gradually polymerise and finally form colloid aggregate as will be evident from the following results on the ultrafiltration of the sol obtained by us :—

TABLE V

Mo O₃ in 100 c. c. of the sol—1.550 gram.

Time in hrs.	Grm. of MoO ₃ in 100 c. c. of the filtrate.	Grm. of MoO ₃ as colloid in 100 c. c. of the sol.	Percentage present as colloid.
2	0.740	0.810	52.2
24	0.732	0.818	52.77
48	0.726	0.824	53.16
72	0.714	0.832	53.67
96	0.706	0.840	54.19
120	0.700	0.846	54.59

In the following table our results are reproduced to show that when the sol is diluted the percentage of the colloid considerably diminishes :—

TABLE VI

Conc. of the sol.	Grm. of MoO ₃ per 100 c. c. of the sol.	Grm. of MoO ₃ in 100 c. c. of filtrate.	Grm. of MoO ₃ as colloid in 100 c. c. of the sol.	Percentage of colloid.
2% ..	1.55	0.740	0.810	52.2
1% ..	0.775	0.508	0.267	34.4
½% ..	0.3875	0.296	0.0915	23.9

A dialysed sol of molybdic acid and freed from the impurities shows a high electrical conductivity and distinct acidity which decrease with time.

TABLE VII

Date.	Sp. Cond. at 30° 10 ⁻³	
27-12-1928	..	1.0719
31-12-1928	..	1.676
4-1-1929	..	1.660

The following results were obtained by Grossmann and Kramer [Berl. Ber., **36**, 1606 (1903)] on the molecular conductivity of a solution of dihydrated molybdenum trioxide.

TABLE VIII

ν 16	32	64	128	256	514	1028
λ 95.8	129.5	147.5	155.6	160.6	163.6	169.0

Vanadium pentoxide sol.—Several years ago Dumanaski [Koll. Zeit., **33**, 147 (1923)] showed that the composition of the colloidal aggregates of vanadium pentoxide sol has the formula of $[H_2 V_6 O_{17} (V_2 O_5)_5]''$. We have found that sufficient vanadic acid is present in the molecular state in a sol of vanadium pentoxide, which cannot be precipitated by an electrolyte and that this amount decreases appreciably with time.

The electrical conductivity of a dialysed vanadium pentoxide sol decreases with the ageing of the sol as given in the following table :—

TABLE IX

Concentration of the sol—M/180

Date.	Molecular conductivity at 30°	
10-3-1922	..	113.4
9-5-1922	..	91.5
22-6-1922	..	85.1
9-9-1922	..	83.8

Vanadium pentoxide sol, therefore, shows a high electrical conductivity and contains some of the substances in the dissolved state, which give out ions. The simple molecules gradually aggregate forming polymerised molecules and finally polymerised molecules form still larger aggregates producing the particles of colloidal dimension.

Telluric Acid.—Rosenheim and Jander [Koll. Zeit., 22, 23 (1918)] have concluded that a solution of telluric acid behaves as a semicolloid. We have investigated the colloidal property of this acid and have found that the acid is not coagulated by such electrolytes as KCl, NaCl, LiCl, RbCl, etc., but the sol becomes unstable and can be coagulated by the electrolytes in the presence of traces of an alkali. These results are analogous to the behaviour of a silicic acid sol. Similarly W. Von Behren and J. Traube [Z. Phys. Chem., 146, 1 (1930)] have reported on the colloidal behaviour of telluric acid. Moreover, irregularities in the boiling-point measurement indicate the formation of some colloidal telluric acid.

We have observed that on dialysis all telluric acid passes through the parchment paper and this is due to the fact that the tendency of this acid to form simpler products is very prominent with dilution.

Rosenheim and Jander have determined the electrical conductivity of telluric acid and their results are reproduced below:—

TABLE X

ν 4	8	16	32	64	128	256	512	1024
20.1902	0.1984	0.2029	0.2119	0.2245	0.2611	0.3131	0.4460	0.6913

We have also studied the change in the electrical conductivity of the sol of telluric acid with time and the following are our results:—

TABLE XI

100 grams of telluric acid per litre.

Time in days.	Sp. Conductivity $\times 10^{-4}$
..	0.773
5	0.773
10	0.775

It is interesting to find that this sol shows no appreciable change in the electrical conductivity with time. It appears, therefore, that the polymerisation of the simple molecules of telluric acid does not increase with the ageing of the sol. The small electrical conductivity is due to the fact that the acid dissociates very feebly, a fact which is clear from our observation that the hydrogen ion concentration in a telluric acid sol containing 100 grams of the acid per litre is as small as $10^{-5.8}$

Antimonic acid sol.—Delacroix [Bull. Soc. Chem., (iii), 21, 1049, 4899] and Senderens (*ibid.*, 44) believed that the product obtained by the hydrolysis of antimony pentachloride existed in the state of true solution. Jander [Koll. Zeit., 23, 1822 (1918)] reported it to be a semicolloid. We have studied the colloidal behaviour of antimonic acid obtained by first precipitating antimonic acid from potassium antimonate by nitric acid and then peptising the sol by washing off the electrolytes. The sol was further purified by dialysis when a slightly turbid negatively charged sol of antimonic acid was obtained. A considerable amount of antimonic acid passed out through a parchment paper and also some acid, which cannot be coagulated by electrolytes like KCl, KNO_3 , etc., remained showing that a certain amount of this acid exists in the molecular form. We have also shown that the acid existing in the molecular form consists mostly of simple molecules. Hence the sol does not become appreciably unstable by traces of an alkali. This view is further confirmed by our

results on the change of electrical conductivity of antimonic acid sol due to ageing :—

TABLE XII

Concentration of the sol—0.95 gm. per litre.

Date.		Sp. Conductivity $\times 10^{-3}$	pH Value
15-8-1928	..	.. 3.06	4.2
20-8-1928	..	.. 3.00	..
30-8-1928	..	.. 3.02	..
13-9-1928	..	.. 2.98	4.3

The electrical conductivities of antimonic acid obtained by the method of Delacroix and Senderens have been determined by E. Tomula [Z. Anorg. Chem., **118**, 84 (1921)] and are reproduced below :—

TABLE XIII

Kind of antimonic acid	32	64	128	256	512	1024
Delacroix	.. 93.5	93.8	95.5	95.2	93.7	103.4
Senderens	.. 91.2	94.0	96.8	98.6	100.4	100.4

We have observed that these sols when coagulated by monovalent electrolytes like KCl, NaCl can be reconverted into the sol state by washing them with water. These sols, therefore, resemble the typical lyophillic sols, *e.g.*, gelatine, soap, etc., in this respect.

From the tables IV, VIII, X and XIII on their electrical conductivity we observed that the molecular conductivity of the sols of telluric, molybdic, tungstic and antimonic acids rapidly increases with dilution showing that more and more of simple molecules are being formed at the expense of the polymerised molecules and the colloidal particles on dilution. Our experimental results given in table VI with molybdic acid show that the percentage of colloidal molybdic acid decreases with the increasing dilution of the sol.

In the case of antimonie acid, however, the changes in the molecular conductivity with dilution is not so rapid as in the case of the other acids. This is due to the fact, as we have concluded from our other results, that antimonie acid which is present in the molecular stage exists mostly as simple molecules and contains little of the molecules in polymerised form. Moreover, the conversion of the polymerised molecules to simpler ones is not a rapid process.

It is interesting to note in the following table that the molecular conductivities of LiIO_3 , CdCl_2 , CdBr_2 , CdI_2 and H_2CdI_4 at 18° increases markedly with dilution :—

TABLE XIV

Concentration moles per litre.	LiCl	BaCl_2	LiIO_3	CdCl_2	CdBr_2	CdI_2	H_2CdI_4
0.0001	98.1	..	66.7	..	..	..	..
0.0005	97.2	117.0	65.9	..	..	..	..
0.001	96.5	115.6	65.3	..	99.0	92.0	204
0.005	93.9	..	62.9	91.0	86.5	76.7	186
0.01	92.1	106.7	61.2	83.0	76.3	65.6	168
0.05	86.1	96.0	55.3	59.0	53.2	40.1	128
0.10	82.4	90.8	51.5	50.0	44.6	31.0	113
0.50	70.7	77.3	39.0	30.8	25.2	18.3	89
1.00	63.4	70.1	31.2	22.4	18.3	15.4	82

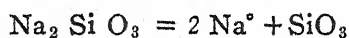
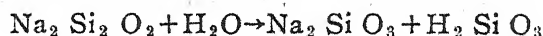
The molecular conductivities of LiCl and BaCl_2 have been incorporated in the above table for comparison. It is well known that the cadmium salts and iodates exist partly in the polymerised form in solution, and it is to be concluded from the table that at higher concentrations the polymerised molecules of these salts rapidly increase in number.

In the following table some of the results of Harman (J. Phys. Chem., **29**, 1155, 1925) on the equivalent conductivities of sodium polysilicates are given:—

TABLE XV

	v=1	10	100
$\frac{1}{2}$ Na ₂ SiO ₃	105.57	157.5	193
$\frac{1}{2}$ Na ₂ Si ₂ O ₅	81.25	130.8	155
$\frac{1}{2}$ Na ₂ Si ₈ O ₁₇	23.24	57.8	815

We are of opinion that the rapid change in the equivalent conductivities of the polysilicates Na₂Si₂O₅ and Na₂Si₈O₁₇ on dilution is due to the formation of more of simple anions at the lower concentration of the silicates. Thus



Similar results were obtained by W. Biltz and Vege-sack (Z. Phys. Chem., **73**, 481, 1910) for the equivalent conductivity of the sol of congo red, which is the sodium salt of a dibasic acid.

TABLE XVI

Temperature = 25°C

Dilution	..	32	64	128	356	512	1024
Equivalent conductivity		58.7	64.3	71.0	79.3	87.6	96.1

McBain and coworkers [J. Chem. Soc., **115**, 1279, 1500 (1919)] have reported that the molecular conductivity of soap solutions at first rapidly decreases then increases to pass through a maximum with increasing concentrations.

We are of opinion that the sols of silicic, telluric, antimonie, vanadic, tungstic and molybdic acids behave like the typical colloidal electrolyte soap studied by

McBain and coworkers. The fact that the electrical conductivity of a soap solution passes through a maximum on increasing concentration can be explained on the view that the hydration of the complex soap anion quickly diminishes in the concentrated solutions.

It appears, therefore, that a colloidal electrolyte is obtained from such a sol, which contains a part of the same substance as highly ionisable simple and complex molecules. The electrical charge on the colloid particles originate mainly from the adsorption of the complex anion, and the ions obtained from the simple and polymerised molecules are responsible for the high electrical conductivity of the sol.

In the case of such sols as those of $\text{Fe}(\text{OH})_3$, $\text{Al}(\text{OH})_3$, $\text{Zr}(\text{OH})_3$, etc., the electrical charge on the colloid particles is due to the preferential adsorption of an ion from an electrolyte, which is an impurity in the sol and can be removed by dialysis. The general scheme of the formation of the two types of colloids is, therefore, identical—in the first case the stabilising electrolyte is obtained from the dissolution of the dispersed particles arising from the same substance, whilst in the second case, the peptising substance is an electrolyte added to or formed in the medium during the formation of the sol.

The view advanced in this paper regarding the nature of the colloidal electrolytes forms a part of the *micellar theory* of the constitution of the colloids as advanced by Pauli and others.

SUMMARY

1. Sols of silicic acid, vanadic acid, tungstic acid, molybdic acid, telluric acid, and antimonie acid can be coagulated by electrolytes either in the absence of alkali or by the addition of traces of alkali, which makes them unstable towards coagulation.

2. Some of these sols show high electric conductivity.
3. In all these sols, a part of the substance exists in the molecular condition and another part as polymerised molecules, capable of giving out complex ions, which are readily absorbed by the sol particles.
4. On dilution, simple molecules in the dissolved condition are produced from the polymerised and colloidal aggregates and thus the electrical conductivity greatly increases with dilution.
5. All these properties show that these substances are typical colloidal electrolytes.

15th August, 1934.

**THE THEORY OF THE CLOTTING OF BLOOD—
PT. III—THE INDEFINITE FLUIDITY OF BLOOD
IN BODY-VESSELS, AND THE RELATION
BETWEEN SETTING TIME AND
SYNERESIS OF BLOOD CLOT**

BY

SATYA PRAKASH, D.Sc.,

Chemistry Department, University of Allahabad.

In some of the publications,¹ the author has made an attempt to explain the mechanism of clotting of blood from the viewpoint of colloids. Any successful theory regarding the clotting of blood must account for the following facts :—

- (a) Though the blood clots almost within a few minutes after its issuance from the blood vessels, it remains indefinitely in the fluid state while circulating in the body.
- (b) If a paraffined cannula be introduced into the artery of an animal and the blood be collected in a paraffined vessel, it either does not clot at all or only so very slowly.
- (c) If the blood is received in the presence of salts like oxalate, citrate, fluoride, or even sodium chloride, or caustic soda, the clotting is very much delayed, and the extent of syneresis very much decreased.

¹ S. Prakash and N. R. Dhar, *J. Phys. Chem.*, **33**, 459 (1929); **35**, 629 (1931); S. Prakash, *Biochem. Zeits.*, **249**, 39 (1932); *Kolloid-Z.*, **65**, 88 (1933).

- (d) If substances like peptones or proteoses be injected into the circulation, the blood drawn after a very brief period from the vessels is found to be incoagulable. The blood thus received may be coagulated by the addition of an excess of calcium chloride or by acidification with carbon dioxide or acetic acid.
- (e) Some of the phospholipoids when injected quickly in large doses promptly induce intravascular clotting, while they render blood incoagulable if injected gradually in small doses.

In the classical theories, all the above facts were explained on the basis of an assumption of numerous hypothetical bodies like thrombin, prothrombin, thrombo-kinase, hepatothrombin, etc., and the rôle of calcium salts had been given an undue importance. From the researches of the author on the study of various inorganic jellies, he is led to believe that the clotting of blood is guided by the same laws which influence the formation of jellies. Some of the points of similarities of the two phenomena have been emphasised in the previous papers of the series, and in this communication a few more of the salient points will be discussed.

The fact that blood remains fluid for an indefinite length of time has been explained from many viewpoints. Circulatory motion of blood might be one of the factors which keeps the blood in fluid condition. Freundlich's, as well as the author's² experiments on the THIXOTROPY of inorganic jellies like iron oxide, aluminium oxide, or various thorium arsenate, phosphate and molybdate

² S. Prakash and N. N. Biswas, J. Indian Chem. Soc., 8, 549 (1931).

jellies, show that a freshly set jelly is again transformed to a sol state when shaken vigorously. A gel is again formed if the sol is allowed to stand for some time. It may be possible in such cases that if the sol which on ageing is liable to form jellies is continuously shaken vigorously, its time of setting may be considerably delayed. Normally, in blood there exists a highly balanced system of components, which under ordinary conditions sets in a very short time, but this nature is very much interfered when it is kept in a violent circulatory motion. However, this can only partly account for the fluidity of blood in the vessels, because, when the clot forms outside the body, it does not get transformed to the sol state even when shaken vigorously. If blood be received in a dilute solution of caustic soda, the clotting time of this alkalinated blood may be markedly further delayed by shaking.

The next plausible explanation generally given to explain the fluidity of blood is the capillary action of blood vessels. The substance of which the blood vessels are supposed to be made up of is such which does not get wet by blood. It has been long known that when blood is received in a paraffined vessel without coming in contact with the injured tissue, it remains fluid for a very long time. Recently, Lampert³ has discussed the relation between the degree of adherence of blood, and its clotting and subsequent syneresis. He has shown that the adhered surface and the capacity of moistening depends directly on surface tension. Amber and artificial resins have been found to retard the coagulation of blood, in consequence of the wall effect. Generally, it was believed, that the clotting of blood is due to the action of thrombin on blood which converts its fibrinogen to fibrin, and this thrombin is

³ H. Lampert, *Kolloid-Z.*, **60**, 3 (1932).

produced from the mother substance prothrombin under the action of calcium salts. But prothrombin and calcium salts are both present in the blood, and, therefore, to explain the intravascular fluidity of blood, Morawitz has assumed the necessary function of thrombokinase which may be the same as Howell's cephalin, a substance supposed to be present only in tissue extracts and bloodplatelets.

The fluidity of blood in the body vessels may be partly explained from another viewpoint too, and the author is confident that though the explanation would appear only tentative at present, yet it is quite fascinating. As is shown in the following table, blood is stabilised both in the presence of acids and alkalies :

230 c.c. of blood. Total volume made with water—250 c.c.

Amount of NaOH (2.47N)	Time of setting	Amount of HCl (N/2)	Time of setting
0	15 minutes	0	15 minutes
2 c.c.	25 "	5 c.c.	30 "
5 c.c.	5 hours	7 c.c.	40 "
8 c.c.	after 2 days	10 c.c.	110 "

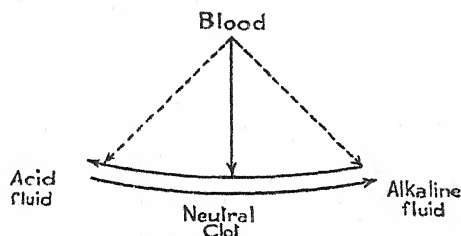
From the results recorded in the above table, it will be seen that blood is stabilised both on the acid and alkaline side. H. de Waele⁴ has shown that fibrinogen is precipitated at pH 5—6; it forms a gel at pH 7—9 and remains dissolved at pH 10. In this connection, the following results of Kugelmass⁵ denoting the relation between pH and clotting time of blood would be of interest :

⁴ H. de Waele, *Ann. Physiol. Physico Chem. Biol.*, **3**, 94 (1927).

⁵ I. N. Kugelmass, *Colloid Symp. Monograph*, **3**, 165 (1925).

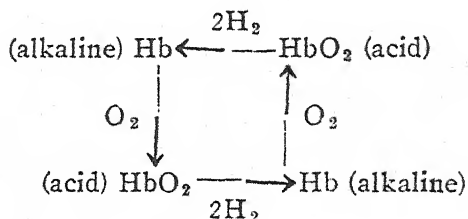
pH	Clotting time	pH	Clotting time
5.1	120 minutes	8.0	140 minutes
5.3	96 „	7.9	80 „
5.5	70 „	7.4	50 „
5.8	55 „	7.0	38 „
6.3	44 „		

Thus the blood is most rapidly coagulated near about at pH 7. On the basis of these results, an assumption may be made that if blood be allowed to swing between two limits, acid side and alkaline side, its fluidity may be maintained :



There are reasons to believe, that in the body, the blood is allowed to remain at the neutral point only for an infinitesimally small time and it is alternatively with rapidity becoming either acid or alkaline. This oscillatory behaviour of blood between the two sides is due to the capacity of hemoglobin to combine with oxygen to form a very readily dissociable compound, oxy-hemoglobin. This is the way in which oxygen from lungs is transported to the body tissues. Hemoglobin is rapidly converted into oxy-compound which immediately imparts acidity to the normal blood, and in the other instant, the oxy-compound again breaks up and the nascently liberated oxygen further oxidises the reducing products in the blood vehicle and thus hydrogen ions are considerably decreased, which in other

words, means that the blood now develops slight alkalinity. The process is repeated, and with a fresh supply of oxygen, the oxy-compound of hemoglobin is again formed and the system becomes acidic. This oxy-compound in its turn now oxidises the other products and hydrogen ions are considerably reduced. Thus, if Hb represents hemoglobin,



According to this scheme, blood is constantly changing from acid side to alkaline side and alkaline side to acid side, and thus it remains constantly a fluid. Hemoglobin absorbs a considerable amount of oxygen at the body temperature as is shown from the following results of Barcroft :

Temperature	...	16°	24°	32°	38°	49°
Percentage of hemo globin converted.		92	71	37	18	6

Thus at the body temperature only 20 per cent of the hemoglobin is converted to oxy-compound, so a very high acidity is never developed, but this 20 per cent is also sufficient to bring the blood to a slight acid side to stabilise it markedly.

In two of the former publications,⁶ the author has studied the influence of electrolytes as well as organic substances on the clotting and syneresis of blood. From the results so far obtained, one fact appears to be clear. All the conditions which go to delay the time of setting

⁶ S. Prakash, *Biochem. Zeits. and Kolloid-Z.*, loc. cit.

also inhibit the extent of syneresis. This fact is illustrated in the following table:

Condition of the clot	Time of setting	Amount of syneresis
<i>In presence of electrolytes (230 c.c. blood in 250 c.c. volume)</i>		
0 c.c. of 1.76M CaCl_2	15 minutes	105 c.c. in 12 hrs.
6 c.c. " "	25 "	1 c.c. in 12 hrs.
7 c.c. " "	1 hour	0.4 c.c. in 12 hrs.
0 c.c. of $\text{N-K}_2\text{C}_2\text{O}_4$	10 minutes	120 c.c. in 5 hrs.
2 c.c. " "	30 "	78 c.c. in 5 hrs.
3 c.c. " "	50 "	13 c.c. in 5 hrs.
4 c.c. " "	2 hours	5 c.c. in 5 hrs.
0 c.c. of N-Na citrate	10 minutes	120 c.c. in 5 hrs.
4 c.c. " "	3½ hours	0 c.c. in 5 hrs.
0 c.c. of 4.08N K_2F_2	15 minutes	111 c.c. in 4.5 hrs.
1 c.c. " "	20 "	44 c.c. in 4.5 hrs.
3 c.c. " "	1½ hours	0 c.c. in 4.5 hrs.
5 c.c. " "	4½ "	0 in even 14 hrs.
<i>In different vessels (vide H. Lampert⁷) 25 c.c. of blood.</i>		
Glass vessel	23 minutes	10.5 c.c. in 72 hrs.
Amber vessel	58 "	8.5 c.c. in 72 hrs.
<i>At different temperatures</i>	Kugelmass-data ⁸	Our data
0°	200 minutes	..
20°	30 minutes	..
25°	..	100 c.c. in 4 hrs.
40°	24 minutes	115 c.c. in 4 hrs.

From all these results, we are led to think that the conditions which go to increase the time of setting also help the inhibition of syneresis. Similar results we have found in the case of inorganic jellies. When a gel is obtained by coagulating its sol with electrolytes, it has been observed that greater the concentration of coagulating electrolytes, the less is the time of setting, but a gel

⁷ H. Lampert, *Kolloid-Z.*, **60**, 3 (1932).

⁸ loc. cit., page 202.

obtained by the use of a greater concentration of coagulating electrolyte synerises to a larger extent than the gel obtained by the addition of less electrolyte. Generally, like blood, in the case of inorganic jellies too, at higher temperatures the time of setting is decreased while syneresis is increased. Recent data of Liesegang and Lampert⁹ also show that of alkaline or acidic gels of silicic acid prepared by varying quantities of hydrochloric acid, those which set in a comparatively less time generally synerise to a larger extent. However, there is a discrepancy in the results of these authors. They have found that both in glass beakers and paraffined glass beakers, the time of setting of a particular silicic acid gel is the same, and that too even when the syneresis in paraffined vessels is more than in non-paraffined ones. I personally think that if there is a difference in the syneresis in the two vessels, then their initial time of setting should also show some difference. If their results of syneresis are all right, then the time of setting in paraffined vessels should be a bit less than what they have observed. The case of blood is just the reverse of silicic acid gel. In blood, the time of setting is enhanced and consequently, the amount of syneresis is less when a paraffined vessel is used.

The physical explanation of the relation between the time of setting and the extent of syneresis is also not difficult to realise. The author¹⁰ has shown from his results on inorganic jellies that in a gel the dispersion medium is bound up in two ways. One binding is due to the surface hydration and the other structural hydration. The surface hydration is guided by the adsorption capacity of uncharged dispersed phase towards the solvent

⁹ R. Liesegang and H. D. Lampert, *Zeit. gesamte expt. Med.*, **82**, 172 (1932).

¹⁰ S. Prakash, *Kolloid-Z.*, **60**, 184 (1932).

medium, while the structural hydration deals with the mechanically imbibed liquid entangled into capillary meshes formed by the surficially hydrated particles. The greater the surficial hydration, the greater is the stability of the jelly and the finer is the structure. The liquid squeezed out in the course of syneresis is the structurally imbibed liquid which comes out when the jelly undergoes shrinkage on account of the agglomeration tendency of the jelly forming particles. When a jelly is set in a longer time, the particles develop more of the surface hydration, but when a jelly is obtained in a shorter time, surface hydration which is gradual and regular is developed only to a less extent and a larger amount of liquid exists in the structurally imbibed state. The greater the structurally imbibed liquid, the less stable is the system, and with the increased agglomeration tendency, the syneresis is also greater. Thus the conditions which quicken the time of setting also favour a rapid syneresis.

The influence of the vessel-walls on the adherence of blood and silicic acid gel is dissimilar, and in view of this fact the theoretical explanation dealing with the relation between the surface tension, the extent of adhered surface and forces of retraction, as derived by Lampert is not very explicit.

Here by the way, a reference may be made to the classical observation of Schimmelbusch and Howell¹¹ who showed that the jelly which is formed by the conversion of fibrinogen into fibrin in neutral or faintly acid solutions of blood consists of an interlacing network of acicular crystals enclosing an interstitial fluid. If, however, fibrinogen is clotted in an alkaline solution the jelly viewed under the microscope or ultramicroscope is structureless. The crystalline jellies exude out the synerised liquid while the

¹¹ W. H. Howell, Amer. J. Physiol, 25, 143 (1914).

structureless jellies do not. The jellies which have been obtained in alkaline medium from the negatively charged blood colloid take a larger time to set, and they develop a larger amount of surface hydration. In their case, the agglomeration tendency is very feeble, and the particles are highly hydrated. Thus they neither synerise nor show any structure under the microscope.

The clot obtained out of the blood is wholly opaque and in this respect it should resemble more closely with such jellies which have been termed "curds" by Laing and McBain.¹² Soap curds should show a marked decrease in conductivity during the course of their opalescence development, while in the case of transparent highly hydrated gels, the conductivity remains constant. The following results on the electric conductivity of thorium arsenate jelly which continuously develops opalescence even after the setting show the continuous decrease in the conductivity with time: A transparent aluminium hydroxide gel does not show the decrease in the conductivity.

THORIUM ARSENATE GEL		ALUMINIUM HYDROXIDE GEL	
Time	Conductivity in mhos	Time	Conductivity in mhos
30 min.	4.297×10^{-2}	10 min.	1.456×10^{-3}
60 "	4.297	20 "	1.456
100 "	4.297	60 "	1.456
120 "	4.285	24 hrs.	1.460
24 hrs.	4.142		

¹² M. E. Laing and McBain, J. W. J. Chem. Soc., 117, 1506 (1920).

The following data on the conductivity of blood during its clotting, as given by Kugelmass,¹³ would be of interest:—

Time	Conductivity megohms
0 min.	65.8+10 ⁻⁵
10 „	58.4
20 „	54.5
30 „	52.1
40 „	51.8

Laing and McBain obtained a difference of 25 per cent (approx.) in the conductivities of soap gels and curds. The difference in the case of the initial conductivity of the blood and the final at the time of setting is also about 20 per cent. This shows also a close resemblance between a blood clot and a particular class of jellies known as curds.

SUMMARY

1. A view has been advanced that blood remains fluid in the body-vessels for an indefinite time because it has a tendency of getting stabilised both on the acid side and alkaline side of neutrality. The regular swing from one side to the other is caused by the alternative formation of oxy-hemoglobin from hemoglobin, thus giving acidity to the system, and this oxy-compound in its turn bringing about the oxidation and decreasing the hydrogen ions to an extent producing slight alkalinity.

2. It has been emphasised that the conditions which favour the rapid setting of the clot or jelly also favour the increased syneresis. The greater the time of setting the less would be the

¹³ loc. cit., page 171.

syneresis. More of the surface hydration is developed when the setting time is delayed and consequently, a less extent of liquid is available for the structural hydration, and hence the syneresis is decreased.

3. As the conductivity of blood decreases during the course of clotting, blood resembles that particular class of jellies which has been termed ' curds ' by Laing and McBain.

GLUTATHIONE AS AN INDUCTOR IN THE OXIDATION OF GLUCOSE

BY

DR. C. C. PALIT, D.Sc.

Sir F. G. Hopkins (Biochem. J., 1921, 15, 286; 1925, 19, 787; J. Biol. Chem., 1922, 54, 527; 1927, 72, 185), and his pupils, notably Harrison (Biochem. J., 1924, 18, 1009), Dixon (Nature, 1929, 124, 512), and others, were successful in effecting the oxidation of amino-acids, proteins and fats by air in presence of glutathione. They were, however, unable to oxidise carbohydrates in the same manner.

It will be interesting to note that the glutathione content of muscles in which oxidation processes are supposed to take place at an intense rate is small as will be evident from the following values:—

Tissues.				Fed animal (dog) Percentage amount of glutathione content.
1. Liver	...	...	...	0.21
2. Lungs	...	...	...	0.08
3. Muscle	...	...	...	0.05
4. Kidney	...	...	...	0.14
5. Spleen	...	...	...	0.09
6. Heart	...	...	...	0.08
7. Testicle	...	...	...	0.06
8. Brain	...	...	...	0.06
9. Adrenaline	...	...	...	0.00

It is well known that roughly two-thirds of the body energy necessary for animal life are obtained from the slow combustion of glucose and as glutathione content in muscles is small, it can be concluded that glutathione is not the chief catalyst or inductor in carbohydrate oxidation in the body.

In continuation of our work on induced oxidation of glucose in presence of insulin (Dhar and Dube, *J. Phys. Chem.*, 1932, **36**, 444) we have carried on experiments on the induced oxidation of glucose in presence of glutathione.

EXPERIMENTAL PROCEDURE

All our experiments were carried out at the laboratory temperature of about 25°. In these experiments, a slow current of air was passed through a series of bottles containing 50 per cent caustic potash solution, baryta solution and concentrated sulphuric acid to free the air from carbon-dioxide and bacteria. This carbon-dioxide free air was passed through the solution of glucose containing glutathione and other substances such as ferrous hydroxide, cerous hydroxide, cupric hydroxide, manganous hydroxide, sodium phosphate, etc. A measured volume of air was passed through the mixture for a definite time. The glutathione used was obtained from British Drug House, London, and the pH of 0.05 per cent solution was 5.5. It is slightly acidic and does not reduce Fehling's solution. Extra pure glucose from E. Merck was used for the experiments. The volume of the solution to be oxidised was always made up to 100 c.c. by adding distilled water. The experimental results recorded in this paper show that contrary to the existing opinion, glutathione in solution can act as a suitable inductor in the oxidation of glucose by air at the ordinary temperature. The pH of the mixture after oxidation did not materially differ from the pH before oxidation.

TABLE No. 1

No. of expt.	Amount of glutathione added in grm.	Vol. of air passed in litres.	Time in hours during which air is passed.	PERCENTAGE AMOUNT OF GLUCOSE OXIDISED IN PRESENCE OF SOLUTION CONTAINING SODIUM PHOSPHATE IN GRM.			
				0 (= 0 c.c.)	0.1440 (= 10 c.c.)	0.2880 (= 20 c.c.)	0.4320 (= 30 c.c.)
1	0.00	18.0	9	0.5	3.7	4.4	6.1
2	0.00	36.5	Do.	0.8	—	9.2	—
3	0.00	73.0	30	—	—	15.54	—
4	0.05	18.0	9	2.3	11.2	13.0	15.1
5	0.05	36.5	Do.	4.4	—	15.6	—
6	0.05	73.0	30	—	—	50.9	—
7	0.10	18.0	9	5.0	13.5	—	28.1

TABLE No. 2

No. of expt.	Substance used.	Amount of substance added in grm.	Volume of air passed in litres	Time during which air is passed in hours.	PERCENTAGE AMOUNT OF GLUCOSE OXIDISED.	
					In absence of glutathione.	In presence of glutathione (= 0.05 grm.)
1	Sodium carbonate	0.10	18	9	29.7	14.0
2	" bicarbonate	0.10	"	"	3.5	8.3
3	" sulphite ...	0.10	"	"	15.2	12.2

The results as recorded in the above tables show that in presence of glutathione, glucose is appreciably oxidised by passing air, and in presence of phosphate, the amount of oxidation is increased. It seems that glutathione acts as an inductor in the oxidation of glucose in presence of phosphate. It is well known that the part which phosphate plays in the animal metabolism is unique. Moreover, when the amount of air or glutathione is increased, the amount of oxidation increases. In presence of sodium carbonate and sodium sulphite, the induced oxidation of glucose in presence of glutathione is retarded.

In catalytic chemistry we generally find that a mixture of two or more catalysts is more effective than their additive values. Moreover, we know that in the animal

body, a group of inductors, *e.g.*, glutathione, internal secretions, vitamins (ascorbic acid) and other reducing substances of blood (compare Annual Reports 1930, 267) seem to take part in inducing the oxidation of food materials. All these inductors are capable of taking up oxygen directly from the air at the ordinary temperature and this oxidation of the inductors possibly leads to the oxidation of food materials. In order to find out whether the addition of inorganic inductors like ferrous hydroxide, cerous hydroxide to glutathione leads to the greater oxidation of glucose, the following experiments were carried on and results recorded below :—

TABLE NO. 3

Oxidation of glucose in presence of inductors—(i) $\text{Ce}(\text{OH})_3$ and (ii) $\text{Fe}(\text{OH})_2$.

(1) Amount of $\text{Ce}(\text{OH})_3$ used = 0.1069 gm.

(2) " $\text{Fe}(\text{OH})_2$ " = 0.0468 "

(3) 10 c.c. of glucose solution = 0.2308 gm. of CuO .

No. of expt.	Name of substance used as inductor.	Volume of air passed in litres.	Time during which air is passed in hours.	Amount of glutathione added in gm.	Amount of sodium phosphate added in gm. in 20 c.c. of the solution taken.	Percentage amount of glucose oxidised.
1	Cerous hydroxide ...	36.5	13	0.00	0.00	41.7
2	" " ...	"	"	0.00	0.2880	56.9
3	" " ...	"	"	0.05	0.00	22.3
4	" " ...	"	"	0.05	0.2880	30.4
5	" " ...	73.0	30	0.00	0.00	78.76
6	" " ...	"	"	0.00	0.2880	80.3
7	" " ...	"	"	0.05	0.00	65.9
8	" " ...	"	"	0.05	0.2880	68.5
9	Ferrous hydroxide ...	36.5	13	0.00	0.00	16.4
10	" " ...	"	"	0.00	0.2880	18.8
11	" " ...	"	"	0.05	0.00	13.1
12	" " ...	"	"	0.05	0.2880	16.55
13	" " ...	73.0	30	0.00	0.00	28.3
14	" " ...	"	"	0.00	0.2880	51.3
15	" " ...	"	"	0.05	0.00	26.17
16	" " ...	"	"	0.05	0.2880	42.03

TABLE NO. 4 (A)

Oxidation of glucose in presence of inductors (i) $\text{Ce}(\text{OH})_3$ and (ii) $\text{Fe}(\text{OH})_2$ mixed with varying amount of cupric hydroxide.

- (1) Amount of $\text{Ce}(\text{OH})_3 = 0.1069$ gram.
 (2) " $\text{Fe}(\text{OH})_2 = 0.0468$ "
 (3) " $\text{Cu}(\text{OH})_2 = 0.0094 - 0.00094$ gram.
 (4) 10 c.c. of glucose solution = 0.2308 gram. of CuO .

No. of expt.	Name of substance used as inductor.	Volume of air passed in litres.	Time during which air is passed in hours.	Amount of copper hydroxide added to the mixture in gram.	Amount of glutathione added in gram.	Amount of sodium phosphate added in gram. in 20 c.c. of the solution.	Percentage amount of glucose oxidised.
1	Cerous hydroxide	73.0	30	0.0094	0.00	0.00	43.07
2	" "	"	"	0.00094	"	"	84.9
3	" "	"	"	0.0094	"	0.2880	71.0
4	" "	"	"	0.00094	"	"	86.5
5	" "	"	"	0.0094	0.05	0.00	27.03
6	" "	"	"	0.00094	"	"	35.6
7	" "	"	"	0.0094	"	0.2880	67.8
8	" "	"	"	0.00094	"	"	70.5
9	Ferrous hydroxide	"	"	0.0094	0.00	0.00	39.25
10	" "	"	"	0.00094	"	"	50.8
11	" "	"	"	0.0094	"	0.2880	57.0
12	" "	"	"	0.00094	"	"	61.7
13	" "	"	"	0.0094	0.05	0.00	34.57
14	" "	"	"	0.00094	"	"	44.0
15	" "	"	"	0.0094	"	0.2880	55.0
16	" "	"	"	0.00094	"	"	56.1

TABLE No. 4 (B)

Oxidation of glucose in presence of inductors (i) $\text{Ce}(\text{OH})_3$ and (ii) $\text{Fe}(\text{OH})_2$ mixed with minute amount of manganous hydroxide.

(1) Amount of $\text{Ce}(\text{OH})_3$ taken = 0.1069 gm.

(2) " $\text{Fe}(\text{OH})_2$ " = 0.0468 "

(3) " $\text{Mn}(\text{OH})_2$ " = 0.00328 "

(4) 10 c.c. glucose soln. = 0.2308 gm. of CuO .

Vol. of air passed = 36.5 litres in 5½ hours.

No. of expt.	Substance used as inductor.	Amount of manganous hydroxide added to the mixture in gm.	Amount of glucose taken in 10 c.c. of the solution in terms of CuO in gm.	Amount of glucose left after oxidation in terms of CuO in gm.	Amount of glucose oxidised in gm. in terms of CuO .	Percentage amount of glucose oxidised.
2	Cerous hydroxide	0.0000	0.2308	0.1854	0.0454	19.67
	" " "	0.00328	"	0.1306	0.1002	43.41
3	Ferrous hydroxide	0.0000	"	0.2208	0.0100	4.33
4	" " "	0.00328	"	0.1194	0.1114	48.26

TABLE No. 5

Oxidation of glucose in presence of mixed inductors. The principal inductor is $\text{Ce}(\text{OH})_3$ (0.1069 gm.) or $\text{Fe}(\text{OH})_3$ (0.0468 gm.), the minor inductors being a mixture of cupric hydroxide (0.00094 gm.) with ferrous hydroxide (0.00162) or cerous hydroxide (0.0025 gm.) in very small quantity. 10 c.c. of glucose solution = 0.2308 gm. of CuO and the volume of air passed = 73 litres in 30 hours. The minor inductors are placed within brackets.

No. of expt.	Mixtures of inductors used.	Amount of principal inductor (cerous or ferrous hydroxide) taken in gm.	AMOUNT OF MINOR INDUCTOR TAKEN IN GRM		Amount of glutathione added in gm.	Amount of sodium phosphate added in gm. in 20 c.c. of the solution.	Percentage of glucose oxidised.
			Cupric hydroxide.	Cerous or ferrous hydroxide.			
1	$\text{Ce}(\text{OH})_3 + [\text{Cu}(\text{OH})_2 + \text{Fe}(\text{OH})_2]$...	$\text{Ce}(\text{OH})_3$ 0.1069	0.00094	0.00162	0.00	0.00	80.2
2	" " " "	"	"	"	"	0.2880	70.5
3	" " " "	"	"	"	0.05	0.00	47.3
4	" " " "	"	"	"	"	0.2880	41.8
5	$\text{Fe}(\text{OH})_3 + [\text{Cu}(\text{OH})_2 + \text{Ce}(\text{OH})_3]$...	$\text{Fe}(\text{OH})_3$ 0.0468	"	0.0025	0.00	0.00	81.2
6	" " " "	"	"	"	"	0.2880	60.5
7	" " " "	"	"	"	0.05	0.00	47.2
8	" " " "	"	"	"	"	0.2880	43.6

TABLE No. 6

Oxidation of glucose in presence of small amount of inductors (*a*) cerous hydroxide, (*b*) ferrous hydroxide, (*c*) manganous hydroxide, and (*d*) cupric hydroxide.

- (1) Amount of $\text{Ce}(\text{OH})_3$ taken = 0.005 gm.
 (2) " $\text{Fe}(\text{OH})_2$ " = 0.0032 "
 (3) " $\text{M}(\text{OH})_2$ " = 0.0038 "
 (4) " $\text{Cu}(\text{OH})_2$ " = 0.00188 "
 (5) 10 c.c. of glucose solution taken = 0.2308 gm. of CuO .

No. of expt.	Substance used as inductor.	Amount of inductor used in gm	Volume of air passed in litres.	Time during which air is passed in hours.	Amount of glutathione added in gm.	Amount of sodium phosphate added in gm.	Percentage amount of glucose oxidised.
1	Ferrous hydroxide ...	0.0032	73.0	30	0.00	0.0000	19.5
2	" " ...	"	"	"	"	0.2880	21.5
3	" " ...	"	"	"	0.05	0.0000	57.8
4	" " ...	"	"	"	"	0.2880	35.9
5	Cerous hydroxide ...	0.0050	"	"	0.00	0.0000	16.7
6	" " ...	"	"	"	"	0.2880	17.8
7	" " ...	"	"	"	0.05	0.0000	46.5
8	" " ...	"	"	"	"	0.2880	49.3
9	Manganous hydroxide	0.0038	"	"	0.00	0.0000	19.46
10	" " ...	"	"	"	"	0.2880	22.05
11	" " ...	"	"	"	0.05	0.0000	76.45
12	" " ...	"	"	"	"	0.2880	86.77
13	Cupric hydroxide ...	0.00188	"	"	0.00	0.0000	15.8
14	" " ...	"	"	"	"	0.2880	20.3
15	" " ...	"	"	"	0.05	0.0000	54.8
16	" " ...	"	"	"	"	0.2880	62.56

The foregoing experimental results recorded in the Table Nos. 3—6, show that the addition of glutathione to cerous hydroxide or ferrous hydroxide acting as an inductor leads to a decrease in the induced oxidation of glucose. Similarly, glutathione also retards the induced oxidation of glucose by mixture of inductors consisting of ferrous hydroxide and cupric hydroxide or cerous hydroxide and cupric hydroxide or a mixture of ferrous, cerous and cupric hydroxides. When, however, the amounts of cerous, ferrous, manganous or cupric hydroxide are small and vary

from 0.005 to .00188 grm., the addition of glutathione markedly increases the oxidation of glucose. Similar results have also been obtained in the induced oxidation of tartrates *in vitro*.

Moreover, we have observed that the addition of small amounts of manganese to cerous or ferrous hydroxide acting as inductors in the oxidation of glucose markedly increases the induced oxidation of glucose as will be evident from the result noted in Table No. 4 (B).

These observations *in vitro* are in agreement with those recorded *in vivo*. Hart, Steenbock, Waddell and Elvehjem (J. Biol. Chem., 1928, 77, 797) showed that the presence of minute amounts of copper were necessary for the utilisation of iron in the formation of the haemoglobin in the red blood corpuscles of the rat. The recent experiments of Orth, Wickwire and Burge (Science 1934, 79, 33) indicate that copper is likewise necessary for the formation of chlorophyll in the leaves of the orange trees. It is interesting to note that cattle grazing on certain types of Florida pasture land develop a nutritional anaemia just as citrus fruit trees on certain lands become unhealthy and this may be cured by the use of iron and copper. Similar observations of C. B. Lipman, and collaborators (Plant. Physiol, 1926, 1, 231; 1931, 6, 593) indicate that in the absence of minute quantity of copper, the production of flowers is retarded. Moreover, with barley in absence of small quantity of copper, not only flower and seed formation but also the growth are affected. Recently Sommer (*ibid.*, 339) obtained poor growth with flax, tomatoes and sunflowers in the absence of copper but on adding 0.06 part of copper per million parts of the medium, 12 to 40 times as much green matter was produced.

In previous publications, we have shown that the addition of nitrogenous substances like glycine and alanine or salts of fatty acids like potassium stearate or oleate,

retards the induced oxidation of glucose. In the following table, we are submitting our results on induced oxidation of glucose due to the inductors like ferrous or cerous hydroxide in presence of glycine or potassium oleate to which glutathione has been added in some cases.

TABLE No. 7

Oxidation of glucose mixed with (a) glycine and (b) potassium oleate in presence of inductors (i) $\text{Ce}(\text{OH})_3$ and (ii) $\text{Fe}(\text{OH})_2$.

- (1) The amount of $\text{Ce}(\text{OH})_3$ used = 0.1069 gm.
- (2) " $\text{Fe}(\text{OH})_2$ " = 0.0468 "
- (3) " glycine or pot. oleate used = 0.10 gm.
- (4) 10 c.c. of glucose solution taken = 0.2308 gr. of CuO .

No. of expt.	Substance used as inductor.	Amount of glycine or potassium oleate added in gm.	Volume of air passed in litres.	Time during which air is passed in hours.	Amount of glutathione added in gm.	Amount of sodium phosphate added in gm.	Percentage amount of glucose oxidised.
Glycine.							
1	Cerous hydroxide	0.1	36.5	13	0.00	0.0000	13.3
2	" "	"	"	"	"	0.2880	31.45
3	" "	"	"	"	0.05	0.0000	8.2
4	" "	"	"	"	"	0.2880	37.6
5	Ferrous hydroxide	"	"	"	0.00	0.0000	24.3
6	" "	"	"	"	"	0.2880	49.6
7	" "	"	"	"	0.05	0.0000	14.4
8	" "	"	"	"	"	0.2880	66.55
Pot. oleate							
1	Cerous hydroxide	0.1	36.5	13	0.00	0.0000	14.6
2	" "	"	"	"	"	0.2880	19.5
3	" "	"	"	"	0.05	0.0000	11.4
4	" "	"	"	"	"	0.2880	25.6
5	Ferrous hydroxide	"	"	"	0.00	0.0000	41.4
6	" "	"	"	"	"	0.2880	43.5
7	" "	"	"	"	0.05	0.0000	34.3
8	" "	"	"	"	"	0.2880	45.3

The above table shows that in this case also the presence of glutathione appreciably retards the induced

oxidation of glucose using ferrous or cerous hydroxide as main inductor.

Experiments in Sunlight.

TABLE No. 8

Temp. = 47°C.

No. of expt.	Amount of glutathione added in gm.	Volume of air passed in litres.	Time during which air is passed in hours	PERCENTAGE AMOUNT OF GLUCOSE OXIDISED IN PRESENCE OF SOLUTION OF SODIUM PHOSPHATE CONTAINING IN GRM.			
				0.0 (= 0 c.c.)	0.1440 (= 10 c.c.)	0.2580 (= 20 c.c.)	0.4320 (= 30 c.c.)
1	0.00	18.0	9	2.0	9.7	13.0	18.6
2	0.05	"	"	3.4	14.3	22.7	28.2
3	0.10	"	"	6.0	17.8	—	—

TABLE No. 9

Temp. = 47°C.

No. of expt.	Substance used as photo-sensitiser.	Amount of photo-sensitiser added in gm.	Volume of air passed in litres.	Time during which air is passed in hours	PERCENTAGE AMOUNT OF GLUCOSE OXIDISED.	
					In absence of glutathione.	In presence of glutathione (0.05 gm.)
1	Zinc oxide ...	0.50	25	7	17.7	27.4
2	Uranium nitrate ..	"	"	"	96.2	99.0
3	" " " " ..	0.10	"	"	86.1	89.1
4	Ferric nitrate ..	"	"	"	77.9	88.3
5	Animal charcoal ..	0.50	"	"	4.5	5.8

TABLE No. 10

No. of expt.	Substance used.	Amount of substance added in gm.	Volume of air passed in litres.	Time during which air is passed in hours	PERCENTAGE AMOUNT OF GLUCOSE OXIDISED	
					In absence of glutathione.	In presence of glutathione (0.05 gm.)
1	Sodium carbonate	0.10	18.0	9	41.3	29.3
2	" bicarbonate	"	"	"	23.5	32.5

The above results show that in presence of sunlight, the induced oxidation of glucose in presence of glutathione is increased. Photo-sensitisers markedly accelerate the reaction, whilst animal charcoal is a poor accelerator. It appears, therefore, that sunlight is of importance in enhancing the oxidation of glucose *in vitro* so well as in the animal body.

F. G. Benedict (The Physiology of Large Reptiles—Carnegie Institution of Washington, 1932, 514), has come to the conclusion that the relatively low heat production with cold blooded animals in comparison with the warm blooded animals of the same size is due to the difference in the distribution of the blood carrying the three important factors of metabolism—*viz.*, oxygen, nutrients and hormones and that increased blood flow is associated with increased metabolism. In the cold blooded animals the amount of blood is relatively less than in warm blooded animals. The heat production in the body seems to be controlled by the blood supplied to the tissues. Where there is a liberal blood supply to the tissues, the heat generation can be high; where the blood supply is low the heat production must be low also. The blood distribution is not determined by the metabolism, because with man the same blood distribution may permit his metabolism to be increased 1,000 per cent in extreme cases. Lusk (Science of Nutrition, 1919, 105) has stated that in starvation, amongst the various body organs, the greatest loss in weight is suffered by the glands and that their activity is greatly reduced.

Hence it seems likely that the internal secretions possibly acting as inductors largely control animal oxidation. In starvation, the amount of internal secretion available for accelerating the oxidation decreases and hence the metabolism is decreased. In violent exercise, the metabolism is highly increased probably due to the increase in

the oxygen intake and a greater supply of internal secretions from the various glands. It appears to us that although glutathione and other reducing agents present in the blood are of some importance in animal metabolism, the chief inductor seems to be the internal secretion.

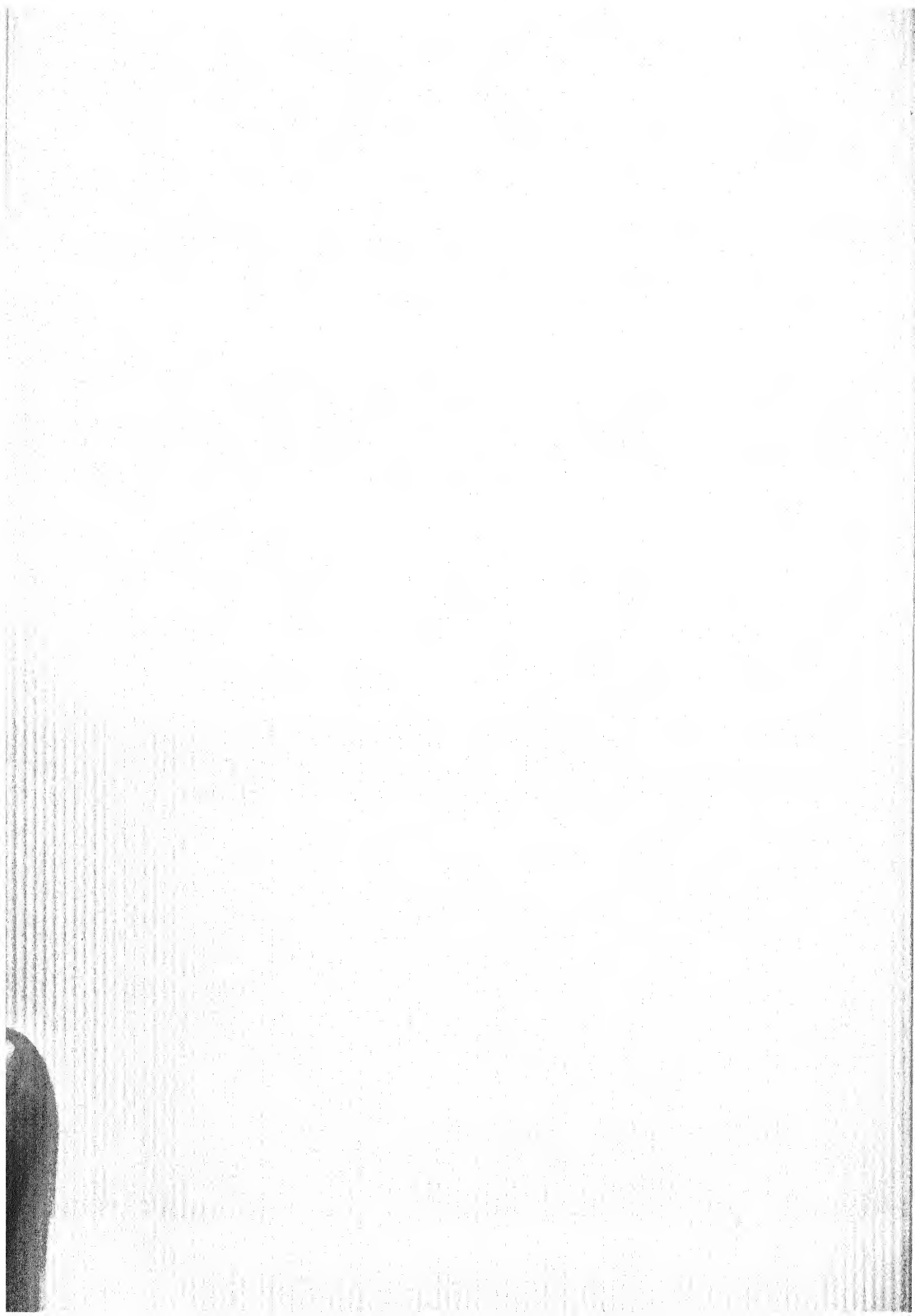
SUMMARY

1. Glucose is appreciably oxidized by air at the ordinary temperature in presence of glutathione. The amount of oxidation increases when phosphates are added.

2. In presence of small amounts of cerous, ferrous, manganous or cupric hydroxide, the addition of glutathione markedly increases the oxidation of glucose. Similarly the addition of small quantities of manganese to cerous or ferrous hydroxide increases the induced oxidation of glucose.

3. The induced oxidation of glucose in presence of glutathione is accelerated by light and photo-sensitisers further accentuate the reaction.

4. There is no correlation between the glutathione content of tissues and the intensity of metabolism. It seems that internal secretions possibly acting as inductors largely control animal oxidation.



USE OF ALKALI TARTRATES IN DIABETES AND PROLONGED FASTING

BY

C. C. PALIT AND N. R. DHAR

In several publications (J. Phys. Chem., 1925, **29**, 926; 1928, **32**, 1263; 1930, **34**, 711, 993; 1932, **36**, 2504; Z. Anorg. Chem., 1930, **191**, 150) we have shown that in presence of inductors like ferrous hydroxide, cerous hydroxide, manganous hydroxide, glutathione, insulin, etc., which can take up oxygen directly from air under ordinary conditions, solutions or suspensions of food materials like starch, sugars, proteins, egg-yellow, egg-white, milk, amino-acids, etc., fats (butter, lecithin), glycogen and glycerol can be readily oxidised by passing air. Moreover, it has been shown that solutions or suspensions of these food materials can be oxidised to carbon dioxide and water by simply passing air in presence of sunlight. In presence of sunlight, the induced oxidation of food materials is greatly increased.

Experiments carried on in presence of light show that the amount of tartrate oxidised (15.6 per cent in sunlight) in sunlight is greater than in the diffused light (3 per cent in diffused light) of the laboratory. Similarly other materials such as glucose, starch, butter, egg white and yellow, glycogen, milk and lecithin have been oxidized by passing air through solutions or suspensions of the above substances in presence of sunlight.

It is known that visible light specially rays of longer wavelengths can penetrate the epidermis to appreciable depths and hence it has been suggested that light acts as a preventive and curative agent in diseases by acting not only as a stimulant of the body cells but also as an

accelerator in the metabolism of food materials. (Compare Dhar—New Conceptions in Biochemistry—1932.)

Our experimental results show that by the addition of sodium tartrate, the amount of potassium oleate oxidised in 30 hours by 73 litres of air is considerably decreased. In the case of ferrous hydroxide as inductor, in presence of sodium tartrate the percentage of potassium oleate oxidised is 7.9 whilst under identical conditions and in absence of sodium tartrate, the percentage of oleate oxidised is 40.7. The corresponding results with cerous hydroxide as inductor are 16.8 per cent and 45.1 per cent respectively. Hence it is clear that the addition of a tartrate markedly decreases the velocity of the oxidation of potassium oleate.

These results seem important from the point of view of treatment of diabetes and prolonged fasting. It is established beyond doubt that the excretion of acetone bodies in the urine occurs only in conditions in which a carbohydrate is either not being utilised owing to metabolic deficiency or is missing from the food. To the former category belong the diseases like diabetes or cases of poisoning with drugs like phlorhizin; to the latter, cases of continued vomiting or voluntary abstention from carbohydrate food. In many cases when acetonuria has made itself manifest as a result of lack of carbohydrate material in the food, the administration of such materials causes the prompt disappearance of ketosis. The authors have suggested the following explanation of the anti-ketogenic properties of carbohydrate:—Under normal conditions, the heat and energy of the body are derived from the simultaneous combustion of carbohydrates, proteins and fats. When, as a result of special conditions, carbohydrate is not burning, more fat and protein must be burnt in order to maintain the body temperature and activity at its normal level. Hence in unit time, more fat would be

burning than under normal conditions, and the combustion of fat would be incomplete, so that acetone bodies would be formed. It has been observed that whenever there is rapid combustion of fat, as for instance in hyperthyroidism, there is elimination of acetone bodies. The same is the case in *vitro* too. Chakravarti and Dhar (Journal, Indian Chem. Soc., 1929, **6**, 617), have observed that in the rapid oxidation of fatty acids by hydrogen peroxide and ferric salts, there is the formation of acetone bodies. They have also observed that if the rate of oxidation of fats be slowed down, as is the case when carbohydrates (*e.g.*, glucose) are present, the amount of acetone bodies formed diminishes. Palit and Dhar (J. Phy. Chem., 1930, **34**, 710), further find that in the slow and induced oxidation of fats, acetone bodies are not formed at all, but only carbon dioxide and water, the products of normal metabolism.

The experimental results obtained by us show that just as carbohydrates decrease the velocity of oxidation of the fats, similarly tartrates can also decrease the velocity of the oxidation of fat. Hence a tartrate or a citrate, apart from its power of acting as a buffer in removing the excess of hydrogen ion H^+ generated in the body, serves as an antiketogenic substance like a carbohydrate. Moreover, mild alkalies have been found to be helpful in increasing the oxidation of food materials. Consequently, in the treatment of nausea and other symptoms arising from prolonged starvation or in diabetes, a mixture of sodium bicarbonate and an alkali tartrate or citrate is likely to be more efficacious than the usual practice of giving sodium bicarbonate alone. Because the tartrate or citrate acting as a food and supplier of energy serves as a marked antiketogenic agent by decreasing the velocity of oxidation of fatty food materials and the formation of the acetone bodies. It seems pretty certain that

when fats are quickly and incompletely burnt in the animal system, acetone bodies are formed and the real treatment in fasting and diabetes is the prevention or decrease of the formation of acetone bodies by the causing of the slow but complete oxidation of the fats. Any agency which will retard the velocity of the oxidation of fats in the body, will be helpful in the treatment of nauseating and other symptoms in fasting and in diabetes and such agencies are carbohydrates or alkali tartrates or citrates. In acute diabetes, the animal system is almost unable to oxidise the carbohydrates and hence the system has to depend mainly on fat for its sustenance. Consequently, the diabetic has to burn more fat in an unit time than the non-diabetic and this leads to the formation of acetone bodies. If a soluble citrate or a tartrate or a mixture of both is given to the diabetic along with sodium bicarbonate, the diabetic is likely to utilise the citrate or tartrate as food and this will check the formation of acetone bodies by decreasing the velocity of oxidation of the fats. In long and continuous starvation also more or less the same thing happens. After the first days of starvation, the glycogen is exhausted and the body has to depend mainly on fats, which in the absence of carbohydrates, are rapidly and incompletely metabolised with the formation of acetone bodies. This is likely to be prevented or considerably decreased by the addition of citrates or tartrates along with sodium bicarbonate. The authors are of opinion that the citrates or tartrates in the drinks will prove highly beneficial in the treatment of long fasts, because in such cases the body has not lost the power of oxidation and will utilise the tartrates and citrates as food along with the fats of the body.

Our experimental results show that in presence of traces of copper, the induced oxidation of tartrate is markedly facilitated, whilst in larger concentrations, it retards

the same process. Hence it appears that in the treatment of metabolism diseases or anaemia, the addition of traces of copper salts to iron or manganese may be useful.



CHEMICAL EXAMINATION OF SOME OF THE INDIGENOUS MEDICINAL PLANTS OF INDIA

BY

NARENDRANATH GHATAK,

Chemical Laboratory, University of Allahabad

India is a vast country which lies practically completely within the tropical region. This fact together with a heavy rainfall throughout the greater part of the country make it particularly suitable for a rank growth of vegetation of all description, amongst which are unlimited number of medicinal plants of great importance. Thus Chopra (*Indigenous Drugs of India*, 1933, p. 44) remarks, "The drug resources of India are vast and inexhaustible and it can be said without exaggeration that India could supply the whole of the civilised world with medicinal herbs. Leaving aside for the moment the drugs used in the indigenous systems of medicine, whose therapeutic value has been investigated in the majority of cases on scientific lines, most of the drugs of established therapeutic value used in the pharmacopœias of different countries grow in great abundance and often in a state of nature in many parts of India. Those which are not indigenous can often be grown in many parts."

From very ancient times the use of Indian Medicinal Plants for curative purposes had been very wide amongst its inhabitants. World renowned Indian savants of the type of Charaka, Susruta, Narahari Pandita, Madana Pala, Bhava Misra, etc., have devoted their talents and untiring energy towards the evolution of a system of curative science from these indigenous medicinal products of India. As a result of their cumulative efforts, the famous

Ayurvedic system of Indian medicine has been evolved, which from the point of view of curative properties is hardly equalled and far less excelled by any other system of medicine.

The main reason for the potency of the Ayurvedic system of medicine lies in the fact that in the Indian medicinal plants there lies a wide variety of very active ingredients, amongst which may be reckoned alkaloids, glucosides, terpenes, resins, phenolic compounds, oleoresins, aliphatic bases, albuminoids, gums, unsaturated compounds, enzymes, vitamins, etc. The systematic chemical examination of all the well known Indian medicinal plants from the chemical point of view is a colossal task which requires an organisation on a huge scale in order to arrive at a workable generalisation. It is probably the work of a century or more by a whole nation. But in spite of the colossal magnitude of the task before us, it can be easily seen that any small contribution by individual workers is likely to advance the cause of knowledge a step further and bring it nearer to the goal of a complete co-ordination between ancient and modern sciences.

Although there are more than two hundred natural orders of Indian plants in which medicinally active principles are supposed to exist, yet actual investigations that have been carried upto the present time reveal the fact that most of the potent active principles exist amongst a comparatively small groups of natural orders of plants in which the following are among the most important : acanthaceæ, apocynaceæ, anacardiaceæ, compositæ, euphorbiaceæ, gramineæ, leguminosæ, liliaceæ, papaveraceæ, ranunculaceæ, rubiaceæ, rutaceæ, solanaceæ, umbelliferæ, zygophylleæ, etc., etc.

The above are the natural orders of plants which contain the most powerful alkaloids of the type of morphine, quinine, atropine, etc., and strongly active glucosides like

strophanthin, digitoxin, digitalin, etc. They also contain a wide variety of other products which contribute towards the intense physiological activity of the drugs belonging to the above natural orders of plants.

Research work on the Chemical Examination of Indian medicinal plants can be directed in the following interesting directions :

Isolation of Alkaloids.—Many of the active Indian medicinal plants contain highly potent alkaloids which can be isolated from them by following one of the general methods of isolation or devising short cuts to them. In this way pseudo-aconitine has been isolated from *Aconitum deinoorrhizum* and *A. balfourii*, indaconitine from *A. napellus* (Mohri), bikhaconitine from *A. spicatum* and *A. laciniatum*; ephedrine and pseudo-ephedrine from *Ephedra vulgaris*; hyoscyamine, atropine and hyoscyne from *Datura stramonium*; vasicine from *Adhatoda vasica*; colchicine from *Gloriosa superba*; ricinine from *Ricinus communis*; colocynthin from *Citrullus colocynthis*; rauwolfine and serpentine from *Rauwolfia serpentina*; kurchine and kurchicine from *Holarrhena antidysentrica*; harmine, harmaline and harmalol from *Peganum harmala* and so on.

There are still a large number of very active and famous Indian medicinal plants, which on qualitative examination have been shown to contain alkaloids, but from which all attempts to isolate the alkaloid in a pure form have been baffled upto this time. Examples of this nature are: *Solanum xanthocarpum*; *Tinospora cordifolia*; *Tribulus terrestris*; *Melia azadirachta*; *Saraca indica*; *Treminalia arjuna*; *Herpestis monniera*; *Vernonia anthelmintica*, etc., etc. There are still many obscure plants of intensely toxic nature which are used by aboriginal tribes in various parts of India for poisoning their arrows either for warfare purposes or for the sake of

hunting. Examples of such plants are *Coptis teeta*; *Mismee teeta*; *Toxicomania assamensis*; *Mamiran latifolia* and so on. Undoubtedly, if genuine specimens of these were available in sufficiently large quantities, then some highly interesting alkaloids or other very potent active principles could be isolated.

Glucosides.—The next class of compounds which are present in the Indian medicinal plants as active constituents and which are as much important (if not more) as the alkaloids themselves, are the glucosides. Examples of such potent glucosides are many and various, such as, digitoxin, digitalin and digitonin from Indian foxglove (*Digitalis purpurea*); strophanthin from *Strophanthus*; thevetin and thevetoxin from *Thevetia neriiifolia*; neriodorin and neriodorein from *Nerium odorum*, chiratin from *Swertia chirata*; abralin from *Abrus precatorius*; acorin from *Acorus calamus*; saponarin from *Saponaria officinalis*; bonducin from *Cæsalpinia bonducella*; phytosterolin from *Eugenia jambolana* and so on. In fact it has been found in a long series of investigations by a large number of workers that this class of compounds occurs in plants with far greater frequency than any other. As a matter of fact it can be safely said that the large majority of active Indian medicinal plants owe their potency to the existence of this kind of materials in their bodies.

Colouring Matters.—Next in order of importance are probably the colouring matters present in many of the Indian medicinal plants. Although they are mere colouring matters in the strict sense of the term, yet it has been found that they have considerable physiological and pharmacological values and as such many of them are used in the Ayurvedic system of medicine. Many of them have also been introduced in the Allopathic system. Examples of these are: *Mallotus philippinensis* (active principle—rottlerin); *Lawsonia alba* (a.p.—lawsone); *Nyctanthes*

arbor-tristis (a.p.—nycanthin); *Plumbago zeylanica* (a.p.—plumbagin); *Embelia ribes* (a.p.—embelin); *Onosma echio-*
ides (a.p.—alkanin); *Butea frondosa* (a.p.—butin); *Pterocarpus santalinus* (a.p.—santalinalin); *Crocus sativus*, saffron, (a.p.— α -crocetin, β -crocetin, γ -crocetin); *Adina cordifolia* (a.p.—adinin); and so on.

Bitter Principles.—In between the glucosides and colouring matters probably another class of compounds can be introduced, which for want of any suitable appellation are known as “bitter principles.” They are in fact neither alkaloids nor glucosides, yet they possess many of their potent properties. Examples of these are: *Cocculus indicus* (active principle—picrotoxin); *Artemisia maritima* (a.p.—santonin); *Quassi wood* (a.p.—quassinin); *Aloe vera* (a.p.—aloin); *Melia azadirachta* (a.p.—margosopierin); *Calotropis gigantea*; *Semecarpus anacardium* (a.p.—semecarpol and bhilawanol); and so on.

Oils.—Many of the Indian medicinal plants contain vegetable oils of special and unusual constitution and on that account they are physiologically very active. The purgative property of Castor oil is undoubtedly due to glycerides of ricinolic acid; of Croton oil due to α -crotonic acid; of Arachis oil due to arachidic acid, etc. The stimulating action of Linseed oil is due to linolinic acid; of Sativa oil due to tetrahydroxy stearic acid (sativic acid); of Chaulmoogra oil due to chaulmoogric and hydno-carpic acids; of Cocoanut oil due to lauric acid; of Almond and Walnut oils to highly unsaturated acids. The unsaponifiable matter contained in many of these oils, and also apart from the oils in many of the plants, is a source of great medicinal activity. For example the active principle of the roots of *Hygrophyla spinosa* has been found to be hygrosterol; active principle of *Bonducella* oil has been found to be ipuranol; active principle of *Chilghozeh* oil has been found to be sitosterol and so on. These

substances although present in very small quantities (not exceeding 2 per cent), yet they have been found so profoundly to affect the physiological character of the oil that the latter or the plant itself becomes of great medicinal importance.

After the important classes of substances enumerated above, Indian medicinal plants also contain many other things sufficiently interesting. Amongst them might be mentioned resins of various description (which are non-crystalline, aromatic and generally vitreous brittle masses of conchoidal fracture); lecithins; tannins and phlobaphenes; sugars and allied substances (some of them being very rare, *e.g.*, raffinose from cotton seeds, *iso* rhamnose, etc.); pectins; mucilages (some of them being very important in diseases of the intestine, *e.g.*, *Plantago ovata*; *Sterculia scaphigera*; *Aegle marmelos*, etc.); starches (rare starches also like inulin obtained from *Dahlia* tubers), proteins, etc., etc.

Amongst the aromatic Indian medicinal plants, there are many essential oils of great physiological importance. Thus *Mentha sylvestris* contains menthol; Anise oil contains anethol; Ajowan oil (*Carum copticum*) contains thymol; Camphor oil contains borneol and camphor; Indian turpentine (*Pinus longifolia*) contains carene and longifolene; Eucalyptus and Cardamom oils contain cineole; Sandalwood oil contains α -santalol and β -santalol and so on.

Another class of complex organic substances, capable of exerting catalytic action, has been isolated from plants; and to these substances the name of enzymes has been applied. The number of enzymes which a plant may contain is surprising; thus in *Beta vulgaris*, the leaves contain invertase, diastase and maltase, the stem possesses invertase, diastase, inulase and emulsin, and the root diastase, maltase, inulase, and emulsin, but not invertase.

Some of the enzymes, other than mentioned above, which are present in plants are: esterase, lipase, protease, urase, catalase, oxidase, peroxidase, pepsin, papain, erepsin, tyrosinase, etc. Enzymes have also been responsible for the important pharmacological properties of some of the Indian medicinal plants. Thus the important medicinal property of the fruit of *Carica papaya* is due to 'papain,' a digestive enzyme; of *Cephalandra indica* due to 'glucokenin,' an enzyme possessing the property of reducing the amount of sugar in the blood; of *Gymnema sylvestre* to an oxidase-like substance which produces glycolysis in a solution containing glucose; of *Tribulus terrestris* to a peroxidase and so on.

Thus in the course of examination of Indian medicinal plants, one often comes across a wide variety of products which require chemical investigation of diverse types in order to have a complete idea of the nature of the constituents of the plant.

For example take the plant *Thevetia neriiifolia* (Juss). This plant which is known as yellow oleander in English, and *pilá-kaner* in Hindustani is a common garden plant and belongs to the natural order Apocynaceæ. *Thevetia neriiifolia* has been well known in India as a poisonous plant and systematic chemical examination that has taken place in our Laboratory shows that the poisonous matter is most concentrated in the extremities of the plant, viz., the roots and in the fruits. (Ghaak, *Bull. Acad. Sci.*, U. P., 1932, 2, 79; Ghatak and Pendse, *Ibid.*, 1933, 2, 259). The fruit which has a hard exterior shell contains a pair of soft creamy white kernels. It is particularly rich in a sweet non-poisonous and non-drying oil, with properties very similar to olive oil. The kernels contain two poisonous glucosides—thevetin and thevetoxin. The kernels also contain a substance which yields a greenish-blue coloration on warming with mineral acids with the

separation of an amorphous dark coloured resin. Aqueous or alcoholic extract of every part of the plant on boiling with acids develops indigo-blue coloration which was first observed by Warden. The kernels have also been found to yield sufficient quantity of reducing sugars. Examination of the roots of *Thevetia neriifolia* also reveals the fact that thevetin is present in appreciable quantity together with a colourless hydrocarbon 'thevetene' whose pharmacological properties have not yet been studied. Examination of the leaves and stalks of the plant also shows that thevetin is present in all of them although in smaller quantities.

Recently Chopra and Mukerjee (*Ind. Jour. Med. Res.*, 1933, 20, 903) worked out the pharmacological action of 'thevetin'—a glucoside which they isolated from the kernels of the fruit of *Thevetia neriifolia*. They obtained it in the form of white rectangular plates, melting at 189-190° and having a molecular formula $C_{72} H_{124} O_{36}$. This substance is claimed to be fairly soluble in hot water but insoluble in chloroform. But the glucoside, thevetin, isolated by the present author is sparingly soluble in boiling water and very soluble in chloroform. It has been obtained in the form of snow white slender needles melting at 192° (sharp) and having a molecular formula $C_{20} H_{30} O_6$. Thus the compound of Chopra and Mukerjee is quite different from the one isolated by us, although the same name has been given to both the substances.

The pharmacological action of thevetoxin has been worked out in the King George's Medical College, Lucknow, by Bhatia and Lall (*Ind. Jour. Med. Res.*, 1934, 21, 605). Thevetoxin closely resembles 'thevetin' of Chopra and Mukherjee in its general pharmacological action but differs in being less toxic. It has a stimulant action on the plain muscles of the intestine, blood vessels, bronchi, uterus and heart. The cardiovascular action of thevetoxin closely

resembles that of the drugs of the digitalis group with the difference that the action on the conductile system is more marked. This accounts for the cardiac arrest in diastole. Unlike digitalis and stropanthus, thevetoxin, though less toxic than 'thevetin,' is yet toxic enough to prevent its safe use as a therapeutic agent.

Some of the Indian medicinal plants which have been well reputed as tonic and blood purifying agents often yield surprising results on chemical examination. Take for example the plant *Hygrophyla spinosa*. It is a marsh plant of the natural order Acanthaceæ. This plant has an age long reputation as a tonic, sedative and blood purifying agent and as such has been very widely used by Indian physicians (*Kavirajas* and *Hakims*) from time immemorial. On systematic examination (Ghatak and Dutt, *J. Indian Chem. Soc.*, 1931, 8, 23) it was found that the active principle was most concentrated in the root of the plant from which a sterol—hygrosterol—was isolated together with traces of an essential oil, a yellowish green wax, gum and comparatively large quantity of maltose. The ash obtained from the roots on ignition was found to consist mostly of potassium salts. The sterol, which has a fair amount of physiological activity by itself, becomes far more energised on exposure to sunlight and is probably thereby converted into vitamin D or a mixture of vitamins in the same way as ergosterol. That is probably the reason why Indian physicians have always advocated the exposure of preparations containing *Talmakhana* (*Hygrophyla spinosa*) to sunlight before use.

Another very interesting case is that of the plant *Tribulus terrestris*, Linn. or small caltrops as it is known in English and *Chota-gokhru* in Hindustani. This plant, which is a mere shrub, belongs to the natural order Zygophylleæ. The fruits which are the most active parts of the plant were supposed to contain alkaloidal matter in

good quantity. But systematic chemical examination (Ghatak, *Bull. Acad. Sci.*, U. P., 1933, 2, 163; Ghatak and Giri, *Ibid.*, 1933, 2, 171) of the fruits in our Laboratory could not substantiate the claims in this direction, put forward by previous workers. The analysis has, however, proved the presence of 5 per cent of a pale yellow semi-drying oil, about 1 per cent of potassium chloride, phlobaphene and albuminous matter. But probably the most important things present in the plant are a peroxidase and a starch hydrolysing enzyme, the former being present in comparatively large quantities, and is probably responsible for the interesting physiological action of the drug. The various factors affecting the activity of the peroxidase of the extract prepared from the crushed fresh fruits of the plant have been studied. The oil has also been analysed.

The presence of potassium chloride probably accounted for the good diuretic property of the plant. Another interesting plant from this particular point of view, which has been examined in this Laboratory (Pendse and Dutt, *Ind. Jour. Med. Res.*, 1932, 20, 666) is *Solanum xanthocarpum*. It is a very thorny plant belonging to the natural order Solanaceæ. It has got a very great reputation in Indian system of medicine as an excellent diuretic even in very obstinate cases. On systematic chemical examination of the plant, it was found that the most important active principle was potassium nitrate, which was present in the dry plant to the extent of some times as much as 2.5 per cent. This clearly accounts for the intense diuretic properties of the plant; as potassium salts, particularly the nitrate, are most powerful in this respect.

Another interesting plant is *Abrus precatorius*, Linn. or Jequirity as it is known in English and Rati in Hindustani. It belongs to the natural order Leguminosæ. The leaves, root and seeds of *Abrus precatorius* have been articles of Hindu materia medica from a very remote period.

The kernels of the seeds contain a crystalline nitrogenous compound, abrine, which is also contained in the stalk in small quantities. (Ghatak and Kaul, *J. Indian Chem. Soc.*, 1932, **9**, 383). This substance has a molecular formula $C_{12} H_{14} O_2 N_2$ and melts at 295° . It has been obtained on concentrating the alcoholic extract of the powdered oil-free kernels. From boiling aqueous solution abrine separates as snow white needles. The seeds also contain a glucoside which has been obtained as yellow, amorphous powder on decomposition of the basic-lead acetate salt. It has a molecular formula $C_{13} H_{14} O_7$ and melts at 105° . It has been named as abralin. Abralin is optically active, having a lævo rotation of -27.37 in aqueous solution. Apart from the above constituents, starch, comparatively large quantity of albuminous matter and small quantity of a clear semi-drying oil have also been obtained from the crushed kernels.

The first attempt towards the isolation of the colouring matter of the seed-coat, or husk of *Abrus precatorius* was made by Sarkar (*Biochem, J.*, 1914, **8**, 281) who concluded it to be a tannin substance. But it has been possible for the present author (Ghatak, *Bull. Acad. Sci., U. P.*, 1933, **3**, 69) to isolate a pure anthocyanin from the seed-coat, besides a good quantity of gallic acid and glucose. The presence of gallic acid probably confused Sarkar to come to the premature conclusion that the colouring matter of *Abrus precatorius* was a tannin substance. The anthocyanin has been named *abranin*. Hot aqueous extract of the crushed seed-coat is precipitated with excess of lead acetate. The lead salt is macerated with glacial acetic acid in the cold and the filtrate, which is of a pink-red colour, is precipitated with ether till the pink colour of the solution just disappears. The coloring matter is obtained by decomposing the precipitated blue lead salt in ethyl alcohol (98 per cent) suspension with hydrochloric

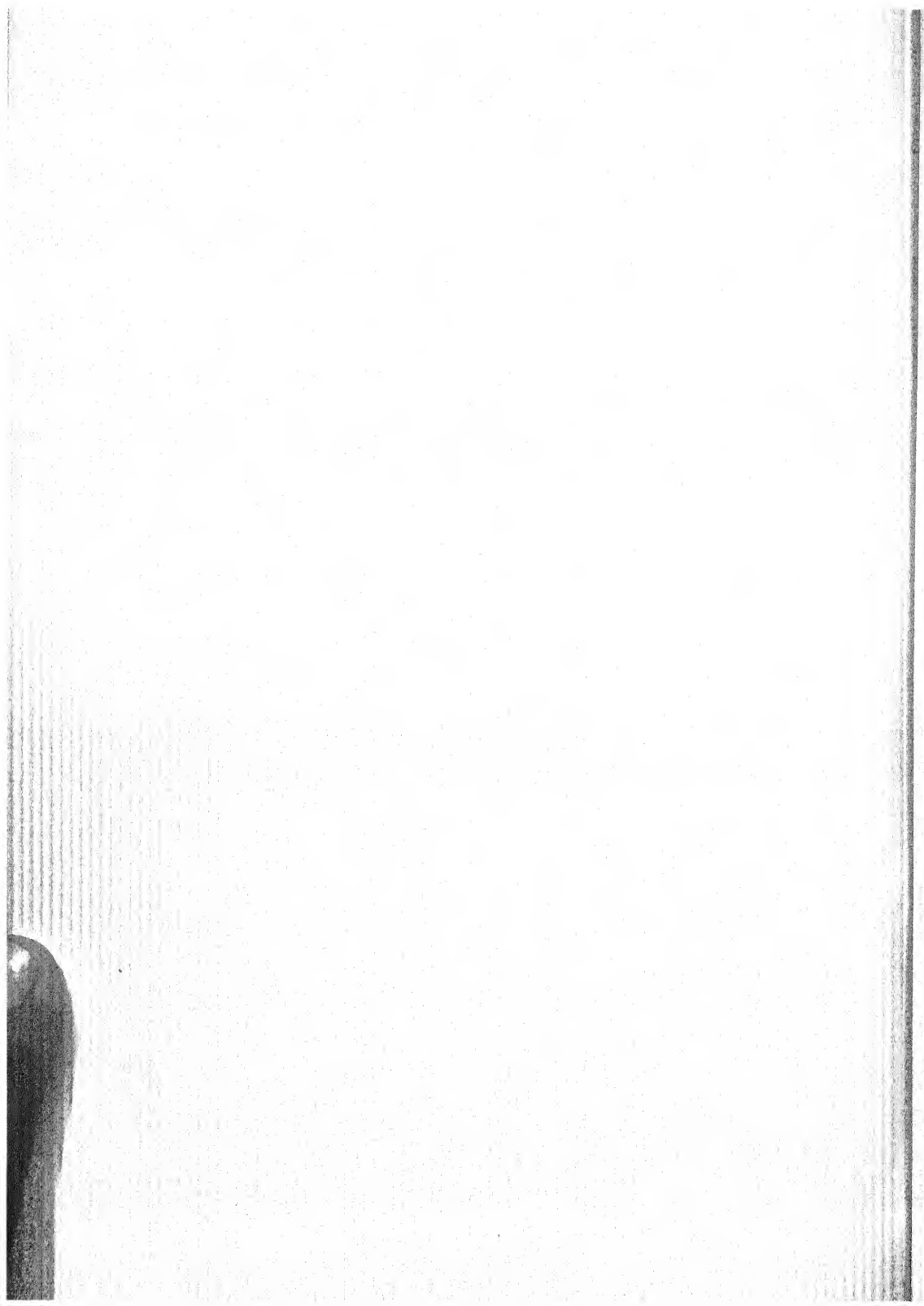
acid and finally precipitating the filtrate with ether. The crude abranin chloride thus obtained on purification in the usual way and on remaining over calcium chloride in a vacuum desiccator melts at $178-79^{\circ}$ with previous sintering. Gallic acid is obtained by decomposing the lead salt that is recovered on concentrating the acetic acid filtrate.

Abranin chloride isomerises readily in neutral solvents like water, methyl and ethyl alcohols, etc. Its colour reactions have been studied. The sugar of hydrolysis of abranin chloride has been identified to be glucose. Abranin picrate, prepared in the usual way, has been obtained in the form of chocolate-red plates and melts at $149-50^{\circ}$. Determination of the distribution number of the substance confirms it to be a monoglucoside. The absorption spectra of the colouring matter in methyl alcohol-hydrochloric acid have been studied.

In an attempt to elucidate the constitution of abrine (Ghatak, *Bull. Acad. Sci., U. P.*, 1934, **3**, 295), it has been found to form mono-hydrochloric and mono-nitric acid salts and thus behaving as a mono-basic compound. It also forms a picrate. All these derivatives are beautifully crystalline. Abrine does not produce any coloration with ferric chloride but forms a mono-acetyl derivative and mono-phenylurethane, proving thereby the presence of an alcoholic hydroxy group. It forms a di-bromide and from volumetric estimation of unsaturation it has been found to contain one double bond. Abrine forms a mono-nitroso compound and is readily oxidised by solution of potassium permanganate.

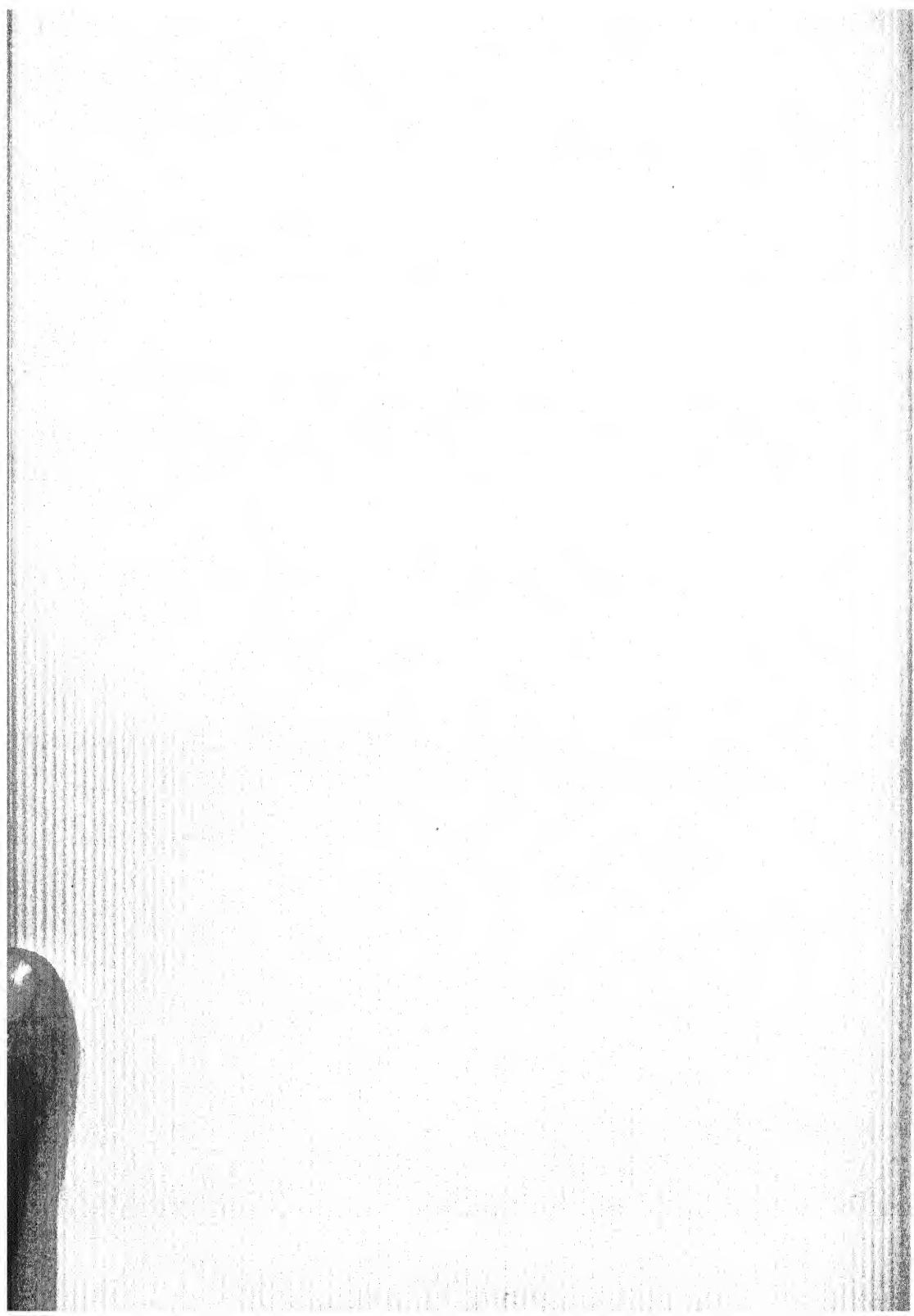
The plant *Casalpinia bonducella* of the natural order Leguminosæ has long been known both to Hindu and Mohammedan physicians for its medicinal properties. The seeds of the plant are globular and contain yellowish-white kernels which are very bitter to taste. The powdered seeds mixed with black pepper are febrifuge and

antiperiodic and are used in chronic fevers. From time to time several chemists have attempted to investigate the chemical nature of the active principle. But their varying conclusions make it difficult to know the exact nature of the active principle as some claim it to be an alkaloid, some a glucoside, some a mixture of complex resinous bodies and so on. The present author (Ghatak, *Proc. Acad. Sci.*, U. P., 1934, 4, 141) has, however, been able to isolate a pure glucoside, 'bonducin,' having a molecular formula $C_{20} H_{28} O_5$ and melting at $119-20^\circ$, which is most probably the active principle of the drug. Bonducin is optically active, having a dextro rotation of $+25.6$ in ethyl alcohol. Other constituents that have been separated from the kernels are sucrose, a neutral saponin, an amorphous tasteless powder, and an yellow oil. The presence of large quantity of starch and a starch hydrolysing enzyme have also been recorded.



SECTION III

MATHEMATICS



SOLAR ECLIPSES OF INDIA FROM 919 B.C. TO 1500 B.C.

BY

M. S. CHATTERJEE.

*Research Scholar in Mathematics,
Allahabad University*

INTRODUCTION

The following is the detailed catalogue of the solar eclipses that occurred in India during the period 919 B. C. to 1500 B.C., which can certainly be taken to be the darkest period of Ancient Indian Chronology. Thus it will prove to be of some help to the Ancient Indian historian and the orientalist who will find it to be a ready reference for deciding the dates dependent on such eclipses. I have purposely omitted in this list the minor eclipses whose phase is less than 1 digit, and included therein only those whose phases are greater than, and equal to at least, 1 digit, for the former ones will hardly interest anybody.

It will be found that the greatest phase of each eclipse included in the list is given for *three* old places like Delhi, Benares, and Patna (I have chosen these three, for references to them are not rare in Ancient Indian History), together with the time at which it attained the greatest phase.

I have throughout followed, in treatment, Dr. Neugebauer's similar work '*Spezieller Kanon der Sonnenfinsternisse*,' which, though it includes eclipses extending over a much longer period, deals only with the phenomena in Egypt and Further Asia, and can therefore be of little help to the student of Ancient Indian History and Indology. The

general plan adopted in this catalogue is that of *Spezieller Kanon der Sonnenfinsternisse*. There are ten columns in all, the first giving the serial numbers of the eclipses in the list. The second column gives the year and the date on which an eclipse took place, the third, fourth, fifth, sixth and the seventh the elements which are necessary to calculate any phenomenon of the eclipse or to determine its visibility or otherwise, and in the former case, the greatest phase with the time thereof. The methods for such calculations are as given in Dr. Neugebauer's *Astronomische Chronologie*, Band I, 1929, pp. 95—125, and the tables to be used in that connection are his improved tables of Schram, given in *Astronomische Chronologie*, Band II. The last three columns relate, as has been pointed out before, respectively to Delhi, Benares, and Patna. In each of these three columns, it will be seen, there are two parts, the first giving the magnitude of the greatest phase (marked " at the top of the columns), expressed in digits. It must be remembered that 12 digits make a *total eclipse*, and the lesser ones only *partial*. The letters 't' and 'r' stand for the total and the annular eclipses respectively. The 's' or 'n' after the magnitude of the greatest phase means that the orb of the sun shadowed is southern or northern. The second part of each of the last three columns gives the time of the greatest phase in hours and minutes, the time being the true time of the place. Sometimes an 's' will be found to precede the second part ; it denotes that the greatest phase occurred when the sun was setting, and the figures following give the time of the sunset, expressed in hours and minutes, the time taken being the local true time.

In conclusion, I offer my sincerest thanks to Dr. Gorakh Prasad, D. Sc. (Edin.), F. R. A. S., under whose guidance the work was carried on.

No.	Year and Date	P	L	μ	γ	u	Delhi	Benares	Patna
1	—919 Nov. 5	167.7	215.0	353	1.1	0.55	" 5.48; S 17 ^h 30 ^m	" 1.38; S 17 ^h 30 ^m	" 0.28; S 17 ^h 34 ^m
2	—922 Jan. 18	169.6	290.3	336	0.90	0.54	2.58; S 17 ^h 8 ^m	1.08; S 17 ^h 10 ^m	" 8.8n; ... 10 ^h 24 ^m
3	—925 March 21	175.6	351.0	256	0.42	0.56	7.1n; 9 ^h 36 ^m	8.6n; 10 ^h 12 ^m	" 8.8n; ... 10 ^h 24 ^m
4	—929 June 2	172.1	61.1	9	0.67	0.53	2.88; S 18 ^h 48 ^m	" 7.08; ... 14 ^h 52 ^m	" 5.68; ... 15 ^h 4 ^m
5	—935 April 10	3.2	10.8	300	0.31	0.57	8.68; 14 ^h 16 ^m	" 7.08; ... 14 ^h 52 ^m	" 5.68; ... 15 ^h 4 ^m
6	—946 Nov. 4	3.7	213.4	265	0.33	0.56	8.6n; 9 ^h 36 ^m	9.0n; 10 ^h 12 ^m	8.8n; 10 ^h 24 ^m
7	—947 May 22	172.9	50.7	256	0.60	0.57	6.58; 9 ^h 16 ^m	4.58; 9 ^h 48 ^m	4.28; 10 ^h 0 ^m
8	—950 July 23	177.1	109.7	295	0.28	0.57	9.28; 13 ^h 16 ^m	10.08; 13 ^h 56 ^m	10.48; 14 ^h 8 ^m
9	—954 Oct. 4	175.8	181.9	283	0.36	0.54	11.88; 11 ^h 20 ^m	12.0n; 12 ^h 0 ^m	11.5n; 12 ^h 12 ^m
10	—956 May 31	8.2	59.4	247	0.70	0.53	6.78; 8 ^h 32 ^m	4.88; 9 ^h 0 ^m	4.28; 9 ^h 8 ^m
11	—657 June 11	359.3	69.4	2	—0.06	0.54	4.1n; S 18 ^h 52 ^m	1.4n; S 18 ^h 44 ^m	" 7.4n; S 18 ^h 34 ^m
12	—960 Aug. 12	4.9	129.8	347	0.46	0.57	10.6n; 17 ^h 40 ^m	9.6n; 18 ^h 10 ^m	9.88; 15 ^h 8 ^m
13	—977 Dec. 17	170.1	256.9	308	0.85	0.54	10.28; 14 ^h 16 ^m	10.08; 14 ^h 56 ^m	9.88; 15 ^h 8 ^m
14	—978 Aug. 2	5.5	119.2	238	0.52	0.56	5.88; 7 ^h 28 ^m	4.28; 7 ^h 52 ^m	3.88; 8 ^h 4 ^m
15	—980 Feb. 28	169.7	329.9	278	0.99	0.57	4.08; 11 ^h 56 ^m	2.48; 12 ^h 36 ^m	2.08; 12 ^h 52 ^m
16	—986 Dec. 26	5.9	266.3	323	0.51	0.54	11.5n; 16 ^h 12 ^m	10.88; 16 ^h 40 ^m	10.48; 16 ^h 52 ^m
17	—989 Sept. 2	184.5	149.4	268	—0.38	0.54	1.6n; 10 ^h 4 ^m	1.6n; 10 ^h 44 ^m	1.2n; 10 ^h 52 ^m
18	—1000 Oct. 2	3.9	179.9	246	0.37	0.56	8.68; 7 ^h 56 ^m	7.88; 8 ^h 28 ^m	8.08; 8 ^h 56 ^m
19	—1001 April 20	175.7	19.3	275	0.36	0.53	11.8n; 11 ^h 24 ^m	10.88; 12 ^h 8 ^m	10.38; 12 ^h 16 ^m
20	—1004 June 20	129.5	78.3	0	0.03	0.57	2.2n; 18 ^h 44 ^m	2.0n; S 18 ^h 48 ^m	1.4n; S 18 ^h 48 ^m

No.	Year and Date	P	L	μ	γ	u	Delhi	Benares	Patna
21	—1007 Feb. 26	6.0	328.4	244	0.58	0.57	" 6.8 ^m ; 8 ^h 48 ^m	" 8.0 ^m ; 9 ^h 16 ^m	" 8.3 ^m ; 9 ^h 32 ^m
22	—1008 Sept. 1	176.6	148.8	260	0.29	0.54	6.58; 9 ^h 16 ^m	6.28; 9 ^h 48 ^m	6.58; 10 ^h 4 ^m
23	—1010 April 29	10.8	28.1	268	0.91	0.53	0.58; 10 ^h 48 ^m	"	"
24	—1023 June 21	172.3	78.5	241	0.72	0.56	2.38; 7 ^h 41 ^m	0.68; 7 ^h 48 ^m	0.48; 8 ^h 24 ^m
25	—1029 April 29	2.9	27.7	284	0.26	0.54	11.28; 12 ^h 28 ^m	9.08; 13 ^h 4 ^m	8.38; 13 ^h 20 ^m
26	—1034 Jan. 26	171.0	297.5	308	0.86	0.57	6.08; 14 ^h 52 ^m	4.48; 15 ^h 28 ^m	4.68; 15 ^h 40 ^m
27	—1036 Sept. 10	4.4	157.9	3	0.41	0.56	4.8 ^m ; 8.18 ^h 16 ^m	1.2 ^m ; 8.18 ^h 16 ^m	0.6 ^m ; 8.18 ^h 16 ^m
28	—1040 Nov. 23	6.0	232.6	285	0.51	0.54	7.8 ^m ; 11 ^h 48 ^m	8.3 ^m ; 12 ^h 32 ^m	8.0 ^m ; 12 ^h 48 ^m
29	—1054 Aug. 31	4.7	147.0	245	0.43	0.56	6.58; 7 ^h 52 ^m	5.08; 8 ^h 28 ^m	5.08; 8 ^h 32 ^m
30	—1061 Jan. 25	7.3	295.9	270	0.70	0.57	10.2 ^m ; 11 ^h 16 ^m	r; 11 ^h 44 ^m	11.28; 12 ^h 4 ^m
31	—1062 July 31	178.1	116.6	260	0.16	0.54	9.38; 9 ^h 24 ^m	8.08; 10 ^h 0 ^m	8.38; 10 ^h 12 ^m
32	—1067 Oct. 23	169.8	200.8	2	0.87	0.54	5.48; 8.17 ^h 40 ^m	"	"
33	—1074 March 18	170.0	347.4	295	0.88	0.55	1.58; 13 ^h 48 ^m	0.28; 14 ^h 24 ^m	"
34	—1077 May 20	175.2	47.4	299	0.45	0.55	5.68; 13 ^h 52 ^m	4.28; 14 ^h 28 ^m	4.28; 14 ^h 48 ^m
35	—1083 March 27	5.2	356.2	312	0.46	0.55	4.28; 15 ^h 28 ^m	2.08; 16 ^h 0 ^m	2.28; 16 ^h 12 ^m
36	—1089 Dec. 25	171.6	264.3	319	0.81	0.57	10.08; 15 ^h 28 ^m	7.88; 16 ^h 8 ^m	8.38; 16 ^h 16 ^m
37	—1102 Sept. 21	178.1	167.8	301	0.17	0.55	4.8 ^m ; 13 ^h 20 ^m	4.4 ^m ; 14 ^h 0 ^m	3.7 ^m ; 14 ^h 12 ^m
38	—1104 May 18	11.2	45.9	283	1.02	0.55	3.78; 7 ^h 36 ^m	2.08; 8 ^h 4 ^m	1.58; 8 ^h 12 ^m
39	—1108 July 29	6.3	114.9	271	0.59	0.56	1.88; 10 ^h 36 ^m	0.88; 11 ^h 16 ^m	0.88; 10 ^h 28 ^m
40	—1116 Dec. 23	7.8	262.8	277	0.74	0.57	11.0 ^m ; 11 ^h 24 ^m	r; 12 ^h 4 ^m	r; 12 ^h 16 ^m

41	-1116	June 28	180.2	85.0	279	-0.02	0.54	" 10.0 ^m ; 11 ^h 3 ^m	" 11.0 ^m ; 12 ^h 12 ^m	" 10.8 ^m ; 12 ^h 28 ^m
42	-1120	March 16	358.3	345.7	346	-0.16	0.57	7.2 ^m ; S 17 ^h 48 ^m	4.6 ^m ; S 17 ^h 48 ^m	3.2 ^m ; 17 ^h 48 ^m
43	-1121	Sept. 21	170.4	167.4	328	0.81	0.54	10.4 ^m ; 15 ^h 44 ^m	10.4 ^m ; 16 ^h 20 ^m	10.6 ^m ; 16 ^h 28 ^m
44	-1123	May 18	3.5	45.6	307	0.30	0.53	6.2 ^m ; 14 ^h 48 ^m	4.2 ^m ; 15 ^h 20 ^m	4.2 ^m ; 15 ^h 28 ^m
45	-1128	Feb. 14	171.5	315.2	302	0.75	0.55	7.4 ^m ; 14 ^h 28 ^m	5.4 ^m ; 15 ^h 0 ^m	5.2 ^m ; 15 ^h 12 ^m
46	-1130	Sept. 30	6.1	176.8	336	0.52	0.54	8.0 ^m ; 16 ^h 40 ^m	9.3 ^m ; 17 ^h 16 ^m	4.1 ^m ; S 18 ^h 4 ^m
47	-1131	April 17	177.9	16.3	351	0.19	0.55	10.4 ^m ; S 18 ^h 12 ^m	5.4 ^m ; 18 ^h 12 ^m	4.0 ^m ; S 18 ^h 12 ^m
48	-1135	June 28	172.5	84.8	16	0.70	0.55	2.8 ^m ; S 18 ^h 56 ^m	...	...
49	-1143	Nov. 22	171.8	290.7	315	0.78	0.57	11.0 ^m ; 14 ^h 36 ^m	11.2 ^m ; 15 ^h 20 ^m	11.4 ^m ; 15 ^h 28 ^m
50	-1156	Aug. 19	179.2	135.0	295	0.07	0.55	7.0 ^m ; 13 ^h 0 ^m	6.7 ^m ; 13 ^h 46 ^m	6.2 ^m ; 13 ^h 58 ^m
51	-1163	July 8	0.6	93.9	299	0.06	0.57	10.8 ^m ; 13 ^h 44 ^m	r ; 14 ^h 40 ^m	11.4 ^m ; 14 ^h 40 ^m
52	-1170	Nov. 21	7.8	229.1	270	0.73	0.57	9.6 ^m ; 11 ^h 28 ^m	7.4 ^m ; 12 ^h 2 ^m	7.0 ^m ; 12 ^h 14 ^m
53	-1180	June 16	9.4	72.7	220	0.89	0.56	5.6 ^m ; 6 ^h 28 ^m	4.0 ^m ; 6 ^h 48 ^m	3.8 ^m ; 6 ^h 56 ^m
54	-1182	Jan. 12	172.4	282.3	297	0.67	0.55	10.2 ^m ; 13 ^h 32 ^m	11.8 ^m ; 14 ^h 12 ^m	t ; 14 ^h 24 ^m
55	-1184	Aug. 28	6.9	143.7	312	0.58	0.54	9.5 ^m ; 14 ^h 52 ^m	9.0 ^m ; 15 ^h 32 ^m	9.3 ^m ; 15 ^h 44 ^m
56	-1191	Jan. 21	8.1	291.6	333	0.74	0.56	2.5 ^m ; 17 ^h 4 ^m	...	...
57	-1196	Oct. 9	178.9	185.7	297	0.11	0.57	3.0 ^m ; 12 ^h 44 ^m	2.4 ^m ; 13 ^h 28 ^m	2.0 ^m ; 13 ^h 40 ^m
58	-1207	May 16	176.0	43.2	332	0.38	0.56	8.2 ^m ; 16 ^h 56 ^m	7.5 ^m ; 17 ^h 24 ^m	8.0 ^m ; 17 ^h 32 ^m
59	-1210	July 18	180.9	102.9	307	-0.08	0.54	4.5 ^m ; 14 ^h 32 ^m	4.3 ^m ; 15 ^h 12 ^m	3.6 ^m ; 15 ^h 12 ^m
60	-1217	June 6	3.3	62.6	7	0.32	0.57	4.6 ^m ; S 18 ^h 48 ^m	...	...
61	-1222	March 5	172.9	333.7	335	0.62	0.54	3.6 ^m ; S 17 ^h 32 ^m	3.2 ^m ; S 17 ^h 36 ^m	2.2 ^m ; S 17 ^h 36 ^m
62	-1229	July 18	173.1	102.6	311	0.58	0.53	5.6 ^m ; 14 ^h 56 ^m	5.8 ^m ; 15 ^h 32 ^m	6.2 ^m ; 15 ^h 40 ^m
63	-1235	May 25	4.2	52.2	272	0.40	0.57	8.5 ^m ; 11 ^h 0 ^m	6.4 ^m ; 11 ^h 32 ^m	6.0 ^m ; 11 ^h 44 ^m
64	-1237	Dec. 11	172.7	248.8	278	0.66	0.56	11.5 ^m ; 10 ^h 52 ^m	11.8 ^m ; 11 ^h 32 ^m	11.3 ^m ; 11 ^h 48 ^m
65	-1246	Dec. 20	8.5	258.4	324	0.79	0.56	7.3 ^m ; 16 ^h 8 ^m	5.8 ^m ; 16 ^h 44 ^m	5.0 ^m ; 16 ^h 52 ^m

No.	Year and Date	P	L	μ	γ	u	Delhi	Benares	Patna
66	—1250 Sept. 7	179.9	152.7	311	0.03	0.57	1.2 ⁿ ; 14 ^h 28 ^m	0.8 ⁿ ; 15 ^h 4 ^m	0.6 ⁿ ; 15 ^h 16 ^m
67	—1250 March 14	0.4	342.3	330	0.04	0.54	t ; 16 ^h 56 ^m	10.6 ^s ; 17 ^h 20 ^m	10.0 ^s ; 17 ^h 28 ^m
68	—1257 July 27	0.7	111.2	316	0.06	0.55	7.4 ⁿ ; 15 ^h 24 ^m	7.4 ⁿ ; 16 ^h 0 ^m	7.4 ⁿ ; 16 ^h 8 ^m
69	—1261 Oct. 9	0.2	184.3	254	0.02	0.53	6.7 ⁿ ; 8 ^h 36 ^m	7.2 ⁿ ; 9 ^h 12 ^m	7.2 ⁿ ; 9 ^h 20 ^m
70	—1276 Feb. 1	174.1	301.2	328	0.51	0.54	11.0 ^s ; 16 ^h 36 ^m	7.6 ^s ; S17 ^h 20 ^m	8.6 ^s ; S 17 ^h 20 ^m
71	—1280 April 14	171.7	12.2	276	0.80	0.57	3.8 ^s ; 11 ^h 36 ^m	1.8 ^s ; 12 ^h 16 ^m	1.6 ^s ; 12 ^h 28 ^m
72	—1283 June 15	175.5	71.1	328	0.38	0.53	10.0 ^s ; 16 ^h 28 ^m	9.6 ^s ; 17 ^h 0 ^m	10.0 ^s ; 17 ^h 8 ^m
73	—1300 Nov. 17	8.6	224.8	306	0.79	0.56	10.4 ^s ; 14 ^h 6 ^m	9.6 ^s ; 14 ^h 50 ^m	9.8 ^s ; 15 ^h 2 ^m
74	—1304 Feb. 10	2.0	310.0	325	0.17	0.54	11.0 ⁿ ; 16 ^h 36 ^m	11.2 ^s ; 17 ^h 0 ^m	11.2 ^s ; 17 ^h 8 ^m
75	—1305 Aug. 17	173.5	131.3	324	0.61	0.56	10.6 ^s ; 15 ^h 48 ^m	10.8 ^s ; 16 ^h 20 ^m	11.5 ^s ; 16 ^h 28 ^m
76	—1307 April 13	7.9	10.7	241	0.76	0.56	10.8 ^s ; 8 ^h 28 ^m	9.2 ^s ; 8 ^h 56 ^m	9.0 ^s ; 9 ^h 8 ^m
77	—1308 Oct. 17	180.5	192.9	282	—0.05	0.54	2.2 ⁿ ; 11 ^h 8 ^m	1.6 ⁿ ; 11 ^h 48 ^m	1.4 ⁿ ; 12 ^h 0 ^m
78	—1311 June 24	2.8	79.4	339	0.25	0.54	11.8 ^s ; 17 ^h 24 ^m	11.5 ^s ; 17 ^h 52 ^m	11.8 ^s ; 18 ^h 0 ^m
79	—1315 Sept. 6	1.0	151.2	235	0.09	0.55	9.8 ⁿ ; 7 ^h 4 ^m	11.2 ⁿ ; 7 ^h 36 ^m	11.2 ⁿ ; 7 ^h 44 ^m
80	—1327 Oct. 17	172.6	192.7	357	0.69	0.56	8.6 ⁿ ; S17 ^h 52 ^m	5.0 ⁿ ; S17 ^h 52 ^m	3.6 ⁿ ; S17 ^h 52 ^m
81	—1331 Dec. 30	174.7	268.1	305	0.46	0.54	5.0 ⁿ ; 14 ^h 12 ^m	6.7 ⁿ ; 14 ^h 52 ^m	7.0 ⁿ ; 15 ^h 4 ^m
82	—1334 May 13	173.9	340.6	330	0.59	0.57	5.0 ^s ; 16 ^h 52 ^m	3.0 ^s ; 17 ^h 20 ^m	2.8 ^s ; 17 ^h 28 ^m
83	—1337 May 14	178.2	39.8	349	0.15	0.53	9.8 ⁿ ; 18 ^h 8 ^m	10.0 ⁿ ; S18 ^h 30 ^m	9.2 ⁿ ; S18 ^h 30 ^m
84	—1339 Jan. 8	10.6	277.5	314	0.90	0.54	4.1 ^s ; 15 ^h 32 ^m	1.6 ^s ; 16 ^h 0 ^m	1.4 ^s ; 16 ^h 8 ^m
85	—1344 April 2	1.2	0.3	320	0.11	0.55	10.0 ⁿ ; 16 ^h 8 ^m	11.8 ^s ; 16 ^h 36 ^m	11.5 ^s ; 16 ^h 44 ^m

86	—1351 Aug. 15	1°8	129°5	351	0°15	0°55	"	2°4 <i>n</i> ; 17 ^h 56 ^m	"	2°6 <i>n</i> ; 18 ^h 24 ^m	"	2°4 <i>n</i> ; 18 ^h 32 ^m
87	—1355 Oct. 27	1°4	202°7	276	0°14	0°57	4°4 <i>n</i> ; 10 ^h 44 ^m	4°4 <i>n</i> ; 11 ^h 28 ^m	4°0 <i>n</i> ; 11 ^h 40 ^m	4°0 <i>n</i> ; 11 ^h 40 ^m	4°0 <i>n</i> ; 11 ^h 40 ^m	
88	—1359 July 15	175°5	99°5	2	0°42	0°56	7°1 <i>n</i> ; 18 ^h 40 ^m	6°0 <i>n</i> ; 8 ^h 18 ^m 48 ^m	5°0 <i>n</i> ; 9 ^h 16 ^m	5°0 <i>n</i> ; 9 ^h 16 ^m	5°0 <i>n</i> ; 9 ^h 16 ^m	
89	—1362 Sept. 15	180°9	159°7	253	—0°08	0°55	9°8 <i>n</i> ; 8 ^h 32 ^m	10°2 <i>n</i> ; 9 ^h 8 ^m	10°0 <i>n</i> ; 9 ^h 16 ^m	10°0 <i>n</i> ; 9 ^h 16 ^m	10°0 <i>n</i> ; 9 ^h 16 ^m	
90	—1369 Aug. 5	2°2	118°8	233	0°19	0°54	10°4 <i>n</i> ; 7 ^h 4 ^m	3°2 <i>s</i> ; 9 ^h 24 ^m	3°2 <i>s</i> ; 9 ^h 24 ^m	3°2 <i>s</i> ; 9 ^h 24 ^m	3°2 <i>s</i> ; 9 ^h 24 ^m	
91	—1374 May 3	171°1	29°1	254	0°79	0°54	5°0 <i>s</i> ; 9 ^h 12 ^m	5°0 <i>s</i> ; 9 ^h 12 ^m	2°9 <i>s</i> ; 9 ^h 36 ^m	2°9 <i>s</i> ; 9 ^h 36 ^m	2°9 <i>s</i> ; 9 ^h 36 ^m	
92	—1377 July 5	176°2	89°0	258	0°35	0°55	7°0 <i>s</i> ; 9 ^h 16 ^m	5°0 <i>s</i> ; 9 ^h 52 ^m	4°8 <i>s</i> ; 10 ^h 8 ^m	4°8 <i>s</i> ; 10 ^h 8 ^m	4°8 <i>s</i> ; 10 ^h 8 ^m	
93	—1381 Sept. 15	173°1	159°6	345	0°64	0°56	9°2 <i>n</i> ; 17 ^h 4 ^m	8°8 <i>n</i> ; 17 ^h 40 ^m	8°6 <i>n</i> ; 17 ^h 48 ^m	8°6 <i>n</i> ; 17 ^h 48 ^m	8°6 <i>n</i> ; 17 ^h 48 ^m	
94	—1383 May 12	6°4	37°9	270	0°58	0°54	6°7 <i>s</i> ; 10 ^h 56 ^m	4°3 <i>s</i> ; 11 ^h 24 ^m	3°6 <i>s</i> ; 11 ^h 32 ^m	3°6 <i>s</i> ; 11 ^h 32 ^m	3°6 <i>s</i> ; 11 ^h 32 ^m	
95	—1385 Nov. 28	174°9	234°4	267	0°44	0°54	11°8 <i>n</i> ; 9 ^h 40 ^m	11°2 <i>n</i> ; 10 ^h 16 ^m	10°8 <i>n</i> ; 10 ^h 24 ^m	10°8 <i>n</i> ; 10 ^h 24 ^m	10°8 <i>n</i> ; 10 ^h 24 ^m	
96	—1394 Dec. 7	10°8	244°0	279	0°91	0°54	8°0 <i>s</i> ; 11 ^h 28 ^m	7°6 <i>s</i> ; 12 ^h 0 ^m	7°6 <i>s</i> ; 12 ^h 8 ^m	7°6 <i>s</i> ; 12 ^h 8 ^m	7°6 <i>s</i> ; 12 ^h 8 ^m	
97	—1398 March 1	3°3	328°5	343	0°30	0°55	5°8 <i>s</i> ; 8 ^h 36 ^m	2°8 <i>s</i> ; 8 ^h 48 ^m	1°5 <i>s</i> ; 8 ^h 40 ^m	1°5 <i>s</i> ; 8 ^h 40 ^m	1°5 <i>s</i> ; 8 ^h 40 ^m	
98	—1405 July 14	3°7	97°7	1	0°32	0°54	8°6 <i>n</i> ; 18 ^h 48 ^m	6°0 <i>n</i> ; 8 ^h 48 ^m	4°5 <i>n</i> ; 8 ^h 48 ^m	4°5 <i>n</i> ; 8 ^h 48 ^m	4°5 <i>n</i> ; 8 ^h 48 ^m	
99	—1406 Jan. 29	176°0	297°6	256	0°38	0°57	4°6 <i>n</i> ; 9 ^h 16 ^m	4°8 <i>n</i> ; 9 ^h 56 ^m	4°6 <i>n</i> ; 10 ^h 4 ^m	4°6 <i>n</i> ; 10 ^h 4 ^m	4°6 <i>n</i> ; 10 ^h 4 ^m	
100	—1409 Sept. 25	1°8	169°2	277	0°17	0°57	8°3 <i>n</i> ; 11 ^h 0 ^m	8°5 <i>n</i> ; 11 ^h 55 ^m	8°0 <i>n</i> ; 11 ^h 52 ^m	8°0 <i>n</i> ; 11 ^h 52 ^m	8°0 <i>n</i> ; 11 ^h 52 ^m	
101	—1413 Dec. 7	3°0	243°5	276	0°26	0°54	...	2°2 <i>n</i> ; 11 ^h 40 ^m	2°2 <i>n</i> ; 11 ^h 56 ^m	2°2 <i>n</i> ; 11 ^h 56 ^m	2°2 <i>n</i> ; 11 ^h 56 ^m	
102	—1420 May 1	359°7	27°5	324	—0°03	0°56	11°3 <i>n</i> ; 16 ^h 20 ^m	11°0 <i>s</i> ; 16 ^h 48 ^m	11°0 <i>s</i> ; 17 ^h 0 ^m	11°0 <i>s</i> ; 17 ^h 0 ^m	11°0 <i>s</i> ; 17 ^h 0 ^m	
103	—1421 Nov. 6	174°7	212°1	358	0°45	0°54	2°0 <i>n</i> ; 8 ^h 32 ^m	...	8°0 <i>s</i> ; 9 ^h 8 ^m	8°0 <i>s</i> ; 9 ^h 8 ^m	8°0 <i>s</i> ; 9 ^h 8 ^m	
104	—1423 July 3	4°4	87°2	249	0°38	0°53	10°5 <i>s</i> ; 8 ^h 32 ^m	8°2 <i>s</i> ; 8 ^h 56 ^m	6°2 <i>s</i> ; 8 ^h 56 ^m	6°2 <i>s</i> ; 8 ^h 56 ^m	6°2 <i>s</i> ; 8 ^h 56 ^m	
105	—1428 March 31	173°6	357°6	284	0°57	0°55	8°7 <i>s</i> ; 12 ^h 32 ^m	6°5 <i>s</i> ; 13 ^h 4 ^m	6°2 <i>s</i> ; 13 ^h 24 ^m	6°2 <i>s</i> ; 13 ^h 24 ^m	6°2 <i>s</i> ; 13 ^h 24 ^m	
106	—1431 June 2	178°7	57°6	307	0°12	0°55	11°2 <i>n</i> ; 14 ^h 40 ^m	11°8 <i>s</i> ; 15 ^h 16 ^m	11°8 <i>s</i> ; 15 ^h 28 ^m	11°8 <i>s</i> ; 15 ^h 28 ^m	11°8 <i>s</i> ; 15 ^h 28 ^m	
107	—1435 Aug. 13	174°3	127°1	358	0°53	0°56	7°1 <i>n</i> ; 18 ^h 16 ^m	7°4 <i>n</i> ; 18 ^h 40 ^m	6°7 <i>n</i> ; 18 ^h 40 ^m	6°7 <i>n</i> ; 18 ^h 40 ^m	6°7 <i>n</i> ; 18 ^h 40 ^m	
108	—1440 Nov. 5	166°9	211°7	350	1°12	0°54	5°4 <i>s</i> ; 8 ^h 32 ^m	3°2 <i>s</i> ; 8 ^h 36 ^m	2°0 <i>s</i> ; 8 ^h 36 ^m	2°0 <i>s</i> ; 8 ^h 36 ^m	2°0 <i>s</i> ; 8 ^h 36 ^m	
109	—1452 Jan. 28	4°5	296°1	347	0°40	0°55	1°3 <i>s</i> ; 8 ^h 12 ^m	1°3 <i>s</i> ; 8 ^h 12 ^m	...	...	...
110	—1453 Aug. 3	174°7	116°4	247	0°50	0°56	2°3 <i>s</i> ; 8 ^h 12 ^m	0°8 <i>s</i> ; 8 ^h 40 ^m	0°8 <i>s</i> ; 8 ^h 40 ^m	0°8 <i>s</i> ; 8 ^h 40 ^m	0°8 <i>s</i> ; 8 ^h 40 ^m	

No.	Year and Date	P	L	μ	γ	u	Delhi	Benares	Patna
111	—1461 Dec. 28	176.8	264.6	265	0.31	0.57	" 4.8n; 9h 44m	" 4.8n; 10h 20m	" 4.4n; 10h 32m
112	—1463 Aug. 23	2.9	136.6	299	0.28	0.57	11.0n; 13h 32m	11.4n; 14h 16m	11.0n; 14h 32m
113	—1468 May 22	171.6	47.0	274	0.73	0.53	1.0s; 11h 4m	...	...
114	—1475 Oct. 4	174.8	178.5	316	0.44	0.54	6.5n; 14h 40m	6.2n; 15h 20m	5.8n; 15h 28m
115	—1477 June 1	6.8	55.7	273	0.58	0.53	4.2s; 11h 4m	1.8s; 11h 36m	0.7s; 11h 52m
116	—1482 Feb. 27	175.7	325.8	305	0.39	0.55	10.0n; 14h 44m	11.2s; 15h 20m	11.0s; 15h 32m
117	—1484 Oct. 13	10.6	187.7	326	0.90	0.54	7.6s; 15h 56m	7.2s; 16h 28m	7.2s; 16h 40m
118	—1485 May 1	181.3	26.4	354	—0.12	0.55	4.0n; 18h 24m	2.4n; 18h 20m	1.0n; 18h 20m
119	—1498 Dec. 17	169.2	253.5	298	0.97	0.55	7.8s; 13h 8m	7.4s; 13h 48m	7.4s; 14h 0m